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Abstract: The U.S. Environmental Protection Agency (EPA) developed the manual to provide introductory information on the solid and hazardous waste management programs under the Resource Conservation and Recovery Act (RCRA). The manual outlines the basic framework of the regulatory program for new EPA and State employees, those persons new to RCRA assignments, and others interested in the Act. The manual is not, however, meant to replace in-depth analysis of the statute and its associated regulations and Agency guidance. The manual is an update of the original RCRA Orientation Manual issued in 1986. Revisions contained in the update reflect the many regulatory changes that have resulted from both the Hazardous and Solid Waste Amendments (HSWA) of 1984 and the Medical Waste Tracking Act of 1988 (RCRA Subtitle J).

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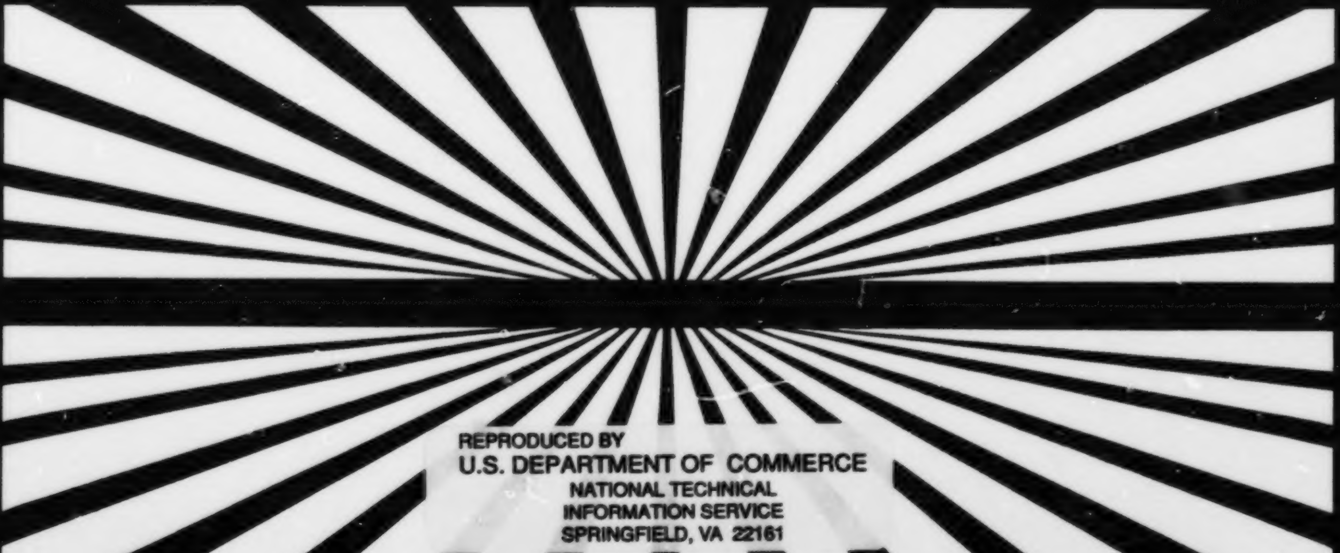

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ORIENTATION
MANUAL

1990 EDITION

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FOREWORD

by Don R. Clay, Assistant Administrator
Office of Solid Waste and Emergency Response

This manual updates the 1986 RCRA Orientation Manual, which has proven to be a popular and valuable resource for anyone working in the RCRA program. This revision reflects the progress that has been made in the program and documents the changes in RCRA.

1990 finds the RCRA Subtitle C regulatory framework in place and most States implementing the program. Furthermore, substantial progress has been made in issuing permits. HSWA - mandated revisons to the Subtitle D municipal solid waste landfill criteria will soon be promulgated, the Subtitle I - underground storage tank program is now being implemented, as is the Subtitle J demonstration program to track medical waste.

As we move ahead in the continuing implementation of RCRA, several priority initiatives stand out. RCRA will soon be re-authorized, and the re-authorization process provides an opportunity to reflect on our progress and points for change and enhancements, particularly for the Subtitle D program. In the future, the RCRA program will place new emphasis on waste minimization and corrective action.

The continued success of the RCRA program rests on the involvement of all affected parties. This manual is a step towards increasing such involvement because it provides a mechanism through which such parties can learn more about the program. Although the manual was designed for EPA and State staff, we hope that it will be useful to all individuals who wish to better understand RCRA.

INTRODUCTION TO THIS MANUAL

The U.S. Environmental Protection Agency (EPA) developed this manual to provide introductory information on the solid and hazardous waste management programs under the Resource Conservation and Recovery Act (RCRA). The manual outlines the basic framework of the regulatory program for new EPA and State employees, those persons new to RCRA assignments, and others interested in the Act. The manual is not, however, meant to replace in-depth analysis of the statute and its associated regulations and Agency guidance. It also does not attempt to impart the skills to perform specific job duties, such as writing a permit. Furthermore, it is written for those unfamiliar with the RCRA program; consequently, complex details purposely have been simplified or excluded for the sake of clarity.

The manual is an update of the original RCRA Orientation Manual issued in 1986. Revisions contained in this update reflect the many regulatory changes that have resulted from both the Hazardous and Solid Waste Amendments (HSWA) of 1984 and the Medical Waste Tracking Act of 1988 (RCRA Subtitle J).

The first four sections of the manual (Section I through Section IV) include an introduction to RCRA, a review of the Subtitle D requirements for nonhazardous solid waste, a discussion of Subtitle C requirements for hazardous waste, and a description of Subtitle I's provisions for underground storage tanks. Section V addresses an important new topic of public concern -- the regulation of medical waste. Section VI examines RCRA's relationship to other environmental laws, especially the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) -- also known as Superfund. Finally, Section VII addresses the public's role in the RCRA program. Each Section or Chapter (where applicable) includes an overview of what is to be covered, illustrations and figures highlighting the text, and a summary of key points presented.

TABLE OF CONTENTS

		Page Number
FOREWORD		
INTRODUCTION TO THIS MANUAL		
SECTION I	INTRODUCTION TO THE RESOURCE CONSERVATION AND RECOVERY ACT	I-1
SECTION II	SUBTITLE D OF RCRA -- MANAGING SOLID WASTE	II-1
SECTION III	SUBTITLE C OF RCRA -- MANAGING HAZARDOUS WASTE	III-1
CHAPTER 1	WHAT IS HAZARDOUS WASTE?	III-3
CHAPTER 2	REGULATIONS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE	III-16
CHAPTER 3	REGULATIONS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE	III-27
CHAPTER 4	REGULATIONS APPLICABLE TO TREATMENT, STORAGE, AND DISPOSAL FACILITIES	III-31
CHAPTER 5	PERMITTING	III-71
CHAPTER 6	ENFORCEMENT	III-87
CHAPTER 7	STATE AUTHORIZATION	III-98
SECTION IV	SUBTITLE I OF RCRA -- MANAGING UNDERGROUND STORAGE TANKS	IV-1
SECTION V	SUBTITLE J OF RCRA -- MANAGING MEDICAL WASTE	V-1
SECTION VI	RCRA AND ITS RELATIONSHIP TO OTHER ENVIRONMENTAL STATUTES	VI-1
CHAPTER 1	LEGISLATIVE FRAMEWORK FOR ADDRESSING HAZARDOUS WASTE PROBLEMS	VI-3
CHAPTER 2	SUPERFUND: THE HAZARDOUS WASTE CLEANUP PROGRAM	VI-8
CHAPTER 3	RCRA AND SUPERFUND: HOW THE TWO PROGRAMS INTERACT	VI-12
SECTION VII	PUBLIC PARTICIPATION	VII-1

TABLE OF CONTENTS (continued)

APPENDIX A UNIFORM HAZARDOUS WASTE MANIFEST
APPENDIX B LAND DISPOSAL RESTRICTIONS MANIFESTING
APPENDIX C UNDERGROUND TANK NOTIFICATION FORM
APPENDIX D MEDICAL WASTE TRACKING MANIFEST
APPENDIX E EPA ORGANIZATION
APPENDIX F HELPFUL ENVIRONMENTAL INFORMATION NUMBERS
APPENDIX G RCRA ACRONYMS

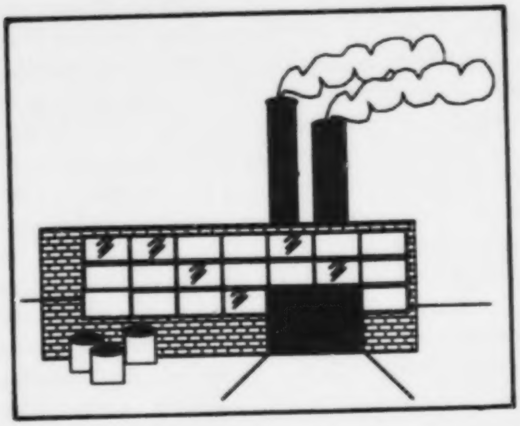
SECTION I

INTRODUCTION TO THE RESOURCE CONSERVATION AND RECOVERY ACT

- **OVERVIEW**
- **RCRA: WHAT IT IS**
  - The Act
  - Regulations
  - Guidance and Policy
- **RCRA: HOW IT WORKS**
  - Subtitle D - Solid Waste
  - Subtitle C - Hazardous Waste
  - Subtitle I - Underground Storage Tanks
  - Subtitle J - Medical Waste Regulations
- **WHO IS INVOLVED IN RCRA?**
- **RCRA TODAY**
  - Waste Minimization
- **OUTLINE OF THE MANUAL**
- **SUMMARY**

SECTION I INTRODUCTION TO THE RESOURCE CONSERVATION AND RECOVERY ACT

OVERVIEW



The Resource Conservation and Recovery Act (RCRA), an amendment to the Solid Waste Disposal Act, was enacted in 1976 to address a problem of enormous magnitude — how to safely dispose of the huge volumes of municipal and industrial solid waste generated nationwide. It is a problem with roots that go back well before 1976.

There was a time when the amount of waste produced in the United States was small and its impact on the environment relatively minor — a river supposedly purified itself every 10 miles. Times changed. With the industrial revolution in the latter part of the 19th century, the country began to experience growth — the likes of which had never been seen before. New products were developed, and the consumer was offered an ever-expanding array of material goods.

This growth continued through the early 20th century and took off after World War II when the nation's industrial base, strengthened by war, turned its energy toward domestic production. The results of growth, however, were not all positive. While the country produced more goods, it also generated more waste, both hazardous and non hazardous. For example, at the end of World War II, United States industry was generating roughly 500,000 metric tons of hazardous waste per year. Compared with today's standards, this amount is small indeed. A national survey conducted by EPA in 1985 estimates that 275 million metric tons of hazardous waste were generated nationwide.

Unfortunately, this phenomenal growth in the production of waste was not mirrored by growth in the field of waste management. Much of the waste produced made its way into the environment, where it poses a serious threat to ecological systems and public health.

It became clear, in the mid-1970s, to Congress and the nation alike, that action had to be taken to ensure that solid wastes are managed properly. This realization began the process that resulted in the passage of RCRA. The goals set by RCRA are:

- To protect human health and the environment

RCRA GOALS

- **To protect human health and the environment**
- **To reduce waste and conserve energy and natural resources**
- **To reduce or eliminate the generation of hazardous waste as expeditiously as possible.**

- To reduce waste and conserve energy and natural resources
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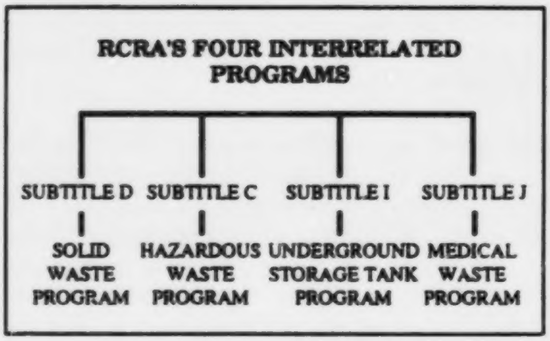


To achieve these goals, four distinct yet interrelated programs exist under RCRA. The first program, under Subtitle D of RCRA, encourages States to develop comprehensive plans to manage primarily nonhazardous solid wastes, e.g., household waste. The second program, under Subtitle C of RCRA, establishes a system for controlling hazardous waste from the time it is generated until its ultimate disposal, in effect, from "cradle-to-grave." The third program, under Subtitle I of RCRA, regulates certain underground storage tanks. It establishes performance standards for new tanks and requires leak detection, prevention and corrective action at underground tank sites. The newest program to be established is the medical waste program under RCRA Subtitle J. It establishes a demonstration program to track medical waste from generation to disposal.

Although RCRA creates a framework for the proper management of hazardous and nonhazardous solid waste, it does not address the problems of hazardous waste encountered at inactive or abandoned sites or those resulting from spills that require emergency response. These problems are addressed by a different act, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly called Superfund.

This section provides an overview of RCRA, including the Act, regulations, guidance, and policy and, in addition, discusses the four programs that make up RCRA and the interrelationships among them. Finally, this section details where RCRA is today, who is involved, and outlines the remainder of this manual.

RCRA: WHAT IT IS

Any discussion of RCRA must begin with a definition of terms. Although "RCRA" is the acronym for the Resource Conservation and Recovery Act, it is often used to refer to the overall program resulting from the Act. To avoid confusion in this manual, the term "Act" refers to the statute or law and the term "RCRA" to the program implemented under the law. In addition, a distinction is made between terms used to

SECTION I INTRODUCTION TO THE RESOURCE CONSERVATION AND RECOVERY ACT

describe statutory provisions versus regulations. When referring to the statutory requirements they are either stated as such or the term "Act" is used. When discussing regulations developed by EPA, they are referred to as either standards, regulations, or regulatory requirements. Thus, if X were in the statute but not the regulations, it would be considered a requirement of the Act. Alternatively, if Y were in the regulations, it could be referred to as either a regulation or a regulatory requirement.

The Act

What we commonly know as the Act is really an amendment to the first Federal solid waste statute. In 1965, the Solid Waste Disposal Act was enacted for the primary purpose of improving solid waste disposal methods. It was amended in 1970 by the Resource Recovery Act, and again in 1976 by RCRA. The changes embodied in RCRA remodeled our nation's solid waste management system and added provisions pertaining to hazardous waste management.

The Act continues to evolve as Congress amends it to reflect changing needs. It has been amended several times since 1976, most significantly on November 8, 1984. The 1984 amendments, called the Hazardous and Solid Waste Amendments (HSWA), significantly expanded the scope and requirements of RCRA. Because of their significance, provisions resulting from the 1984 amendments are emphasized throughout the manual.

The Act is a law that describes the kind of waste management program that Congress wants to establish. This description is in very broad terms, e.g., directing EPA to develop and promulgate criteria for identifying the characteristics of hazardous waste. The Act also provides the Administrator of EPA (or his or her representative) with the authority necessary to carry out the intent of the Act, e.g., authority to conduct inspections.

The structure of the Act is straightforward. It is currently divided into ten subtitles, A through J. Subtitles A, B, E, F, G, and H outline general provisions; authorities of the Administrator; duties of the Secretary of Commerce; Federal responsibilities; miscellaneous provisions; and research, development, demonstration, and information. Subtitles C, D, I, and J lay out the framework of the four programs that

Outline of the Act

Subtitle	Provisions
A	General Provisions
B	Office of Solid Waste; Authorities of the Administrator
C	Hazardous Waste Management
D	State or Regional Solid Waste Plans
E	Duties of the Secretary of Commerce in Resource and Recovery
F	Federal Responsibilities
G	Miscellaneous Provisions
H	Research, Development, Demonstration, and Information
I	Regulation of Underground Storage Tanks
J	Standards for the Tracking and Management of Medical Waste

make up RCRA — the hazardous waste management program; the solid waste program; the underground storage tank program; and the medical waste program, respectively.

Regulations

The Act includes a Congressional mandate for EPA to develop a comprehensive set of regulations. Regulations are legal mechanisms that define how a statute's broad policy directives are to be implemented. Many RCRA regulations have been developed to date, covering a range of topics, from guidelines for State solid waste plans to the framework for the hazardous waste permit program.

federal register
Environmental Protection Agency

RCRA regulations are developed by EPA and published according to an established process. When a regulation is proposed, it is published in a document called the Federal Register. It is usually first published as a proposed regulation, allowing the public to comment on it for a period of time, normally 30-60 days. Included with the proposed regulation is a discussion of the Agency's rationale for the regulatory approach and an explanation of the technical basis for the proposed regulation (the preamble). Following the comment period, EPA evaluates public comments. Addressing the comments frequently results in revision to the proposed regulation. The final regulation is published in the Federal Register ("promulgated"). Regulations are compiled annually and bound in the Code of Federal Regulations (CFR) according to a highly structured format. This latter process is called codification. The codified RCRA regulations can be found in Title 40 of the CFR, Parts 240-280. These regulations are often cited as 40 CFR, with the Part listed afterward, e.g., 40 CFR Part 264, or the Part and Section, e.g., 40 CFR 264.10.

code of
federal regulations
Protection of Environment
40

Although the relationship between an Act and its regulations, discussed above, is the norm, the relationship between HSWA and its regulations differs. HSWA is unusual in that Congress placed explicit requirements in the statute in addition to instructing EPA in general language to develop regulations. Many of these requirements are so specific that EPA incorporated them directly into the regulations. HSWA is all the more significant because of the ambitious schedules that Congress established for implementation of the Act's provisions. Another unique aspect of HSWA is that it establishes "hammer" provisions, which are statutory requirements that go into effect automatically (as regulations) if EPA fails to issue regulations by certain dates.

The interpretation of statutory language does not end with the codification of regulations. EPA further clarifies its regulations through guidance documents and policy.

Guidance and Policy

Guidance documents are issued by EPA primarily to elaborate and provide direction for implementing regulations. They essentially explain how to do something. For example, the regulations in 40 CFR Part 270 detail what is required in a permit application for a hazardous waste management facility, and the guidance for this Part gives instructions on how to evaluate a permit application to see if everything is included. Guidance documents also provide the Agency's interpretation of the Act.

Guidance = How to

Policy = Should do

Policy statements, on the other hand, specify operating procedures that should be followed. They are a mechanism used by EPA program offices to outline the manner in which pieces of the RCRA program are to be carried out. For example, the enforcement office may issue a policy outlining what enforcement action must be taken if a ground-water violation is found. In most cases, policy statements are addressed to the staff working on implementation.

Many guidance and policy documents have been developed to aid in implementing the RCRA program. Indeed, there are so many that describing them is beyond the scope of this manual. However, to find out what documents are available, one may use the Office of Solid Waste's Directives System. This system lists all RCRA-related policy, guidance, and memoranda, and where they can be obtained. These lists are available from each Region's Policy Directives Coordinator.

RCRA: HOW IT WORKS

The four programs established under RCRA — solid waste, hazardous waste, underground storage tanks, and medical waste — are described in detail in ensuing chapters. However, to provide an overall perspective of how RCRA works, each of these programs and their interrelationships is briefly summarized here. In this manual, the solid waste program (Subtitle D) is discussed before the hazardous waste program (Subtitle C). Although this is alphabetically out of order, the structure is designed to benefit the reader. The Subtitle D Chapter includes the definition of solid waste, which must be understood before the Subtitle C program can be explained.

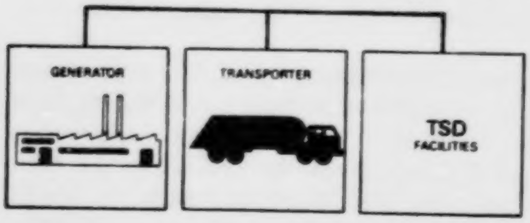
Subtitle D - Solid Waste

Subtitle D of the Act encourages States to develop and implement solid waste management plans. These plans, among other things, are intended to promote recycling of solid wastes and require closing or upgrading of all environmentally unsound dumps. Due to increasing volumes of solid waste, solid waste management has become a key issue facing many localities and States. In recognition of this issue, Congress directed EPA in HSWA to take an active role with the States in solving the difficult problem of solid waste management. EPA is in the process of revising the standards that apply to municipal solid waste landfills. Concurrent with the revision of these standards, EPA formed a task force to analyze solid waste source reduction and recycling options. The revised solid waste standards, together with the task force findings, will form the basis for EPA's development of a strategy to better regulate municipal solid waste management.

Subtitle C - Hazardous Waste

Subtitle C of the Act establishes a program to manage hazardous wastes from "cradle-to-grave." The objective of the Subtitle C program is to ensure that hazardous waste is handled in a manner that protects human health and the environment. To this end, there are Subtitle C regulations regarding the generation, transportation, and treatment, storage, or disposal of hazardous wastes. In practical terms, this means regulating a large number of hazardous waste handlers. As of June 1989, EPA has on record more than 7,000 treatment, storage, and disposal facilities; 17,000 transporters; and about 180,000 large and small quantity generators.

The Subtitle C Program Regulates



The Subtitle C program has resulted in perhaps the most comprehensive regulations EPA has ever developed. They first identify those solid wastes that are "hazardous" and then establish various administrative requirements for the three categories of hazardous waste handlers: generators, transporters, and owners or operators of treatment, storage, and disposal facilities (TSDFs). In addition, the Subtitle C regulations set technical standards for the design and safe operation of TSDFs. These standards are designed to minimize the release of hazardous waste into the environment. Furthermore, the regulations for TSDFs serve as the basis for developing and issuing the permits required for each facility. Issuing permits is essential to making the Subtitle C regulatory program work, since it is through the permitting process that EPA or a State actually applies the technical standards to facilities.

One of the prime differences between Subtitle C and Subtitle D is the type of waste each regulates. Subtitle C regulates only hazardous waste, a subset of solid waste, whereas the Subtitle D program primarily manages nonhazardous solid waste. Furthermore, Subtitle C was initially established as a Federal program eventually to be delegated to States, unlike Subtitle D, which began as a State program.

Subtitle I - Underground Storage Tanks

Subtitle I of the Act regulates petroleum products and hazardous substances (as defined under Superfund) stored in underground tanks. The objective of Subtitle I is to prevent leakage to ground water from tanks and to clean up past releases. Under Subtitle I, EPA has developed performance standards for new tanks and regulations for leak detection, prevention, closure, financial responsibility, and corrective action at all underground tank sites. This program is similar to the Subtitle C program in that it may be delegated to States. Approximately 1.4 million tanks are regulated under Subtitle I.

Subtitle J - Medical Waste Regulations

Congress recently added Subtitle J to RCRA to address the problem of medical waste mismanagement. During the summer of 1988, medical wastes washed up on Atlantic beaches. This phenomenon highlighted the inadequacy of medical waste management practices and prompted Congress to enact legislation addressing the problem. Subtitle J instructs EPA to develop a two-year demonstration program to track medical waste from generation to disposal in demonstration States. After completion of the demonstration program in 1991, the Agency will report its findings to Congress, who will consider the merits of national medical waste regulation.

WHO IS INVOLVED IN RCRA?

The RCRA program involves a myriad of people and organizations with varying roles. Congress and the President set overall national direction for RCRA programs through amendments to the Act. EPA, through its Office of Solid Waste and Emergency Response (OSWER), translates this direction into operating programs by developing regulations, guidelines, and policy. EPA then implements RCRA programs or delegates implementation to the States, providing them with technical and financial assistance.

The regulated community necessarily is involved with the RCRA program because it must comply with the law and its regulations. Finally, the general public participates by providing input and comments at almost every stage of the program's development and implementation.

RCRA TODAY

When RCRA was first enacted in 1976, much work was required to implement the program. Since then, both the Subtitle C and D programs have been established through regulations, and EPA and authorized States have concentrated on implementing the Subtitle C program by issuing permits to TSDFs. Delegation of the RCRA program to individual States continues. EPA is working to implement the provisions of HSWA within the existing regulatory framework. For example, EPA has developed and continues to expand regulations to restrict the land disposal of wastes. In addition, under RCRA Subtitles I and J, new programs for regulating underground storage tanks and medical wastes were developed.

Waste Minimization

Waste
Minimization

As the scope of waste management has come into focus, one fact is clear: the preferred manner of managing waste is not to generate it in the first place. Congress recognized this and made it one of the goals of Subtitle C of RCRA — to reduce or eliminate the generation of hazardous waste. EPA established a waste minimization program to achieve this goal. EPA uses the term "waste minimization" to mean the reduction, to the extent feasible, of hazardous waste generated prior to any treatment, storage, or disposal of the waste. It is defined as any source reduction or recycling activity that results in either reduction of total volume of hazardous waste or reduction of toxicity of hazardous waste, or both, as long as that reduction is consistent with the general goal of minimizing present and future threats to human health and the environment.

RCRA contains several provisions for implementing hazardous waste minimization. Section 3002 requires hazardous waste generators to identify in their biennial reports to EPA (or the State) the efforts undertaken to reduce the volume and toxicity of waste generated and reductions in volume and toxicity actually achieved. In addition, generators are required to certify on the manifest accompanying off-site shipment of their waste that they have a program in place to reduce the volume or quantity and toxicity of such waste to the degree determined by the generator to be economically practicable. EPA published guidance in June 1989 to assist hazardous waste generators in developing such a waste minimization program.

EPA is in the process of developing a strategy for institutionalizing waste minimization within the RCRA waste management framework. The strategy has five overall goals:

- Promote progress through outreach, technical guidance, and information
- Identify barriers in the RCRA program; develop regulatory, nonregulatory, and statutory remedies
- Promote innovative idea development among RCRA program managers and staff
- Measure progress in waste minimization
- Develop and reinforce a partnership with States.

In recent years, more and more States have established waste minimization programs to assist industry in realizing the benefits of waste minimization. In many instances, there are significant economic incentives to adopt waste minimization practices. RCRA hazardous waste regulations make the handling of hazardous waste an extremely costly, complicated business. As a result, industries have turned increasingly to measures aimed at reducing their generation of waste, such as source reduction and recycling.

EPA is also developing strategies and priorities for encouraging source reduction and recycling of the nonhazardous solid waste stream regulated by Subtitle D of RCRA. In addition, there is a new Agency-wide, multi-media program to promote pollution prevention.

We have today a national waste management program. As a result, waste reduction and recycling are occurring, waste management methods have improved, and natural resources are being conserved. Improper waste generation and disposal can still pose problems, but now we have better management and enforcement tools for addressing them.

OUTLINE OF THE MANUAL

The remainder of this manual describes in detail the four RCRA programs briefly discussed in this introduction. In addition, sections reviewing the interrelationships between RCRA's Subtitle C program and other environmental statutes, and public participation are included. The remainder of the manual consists of:

Section II: Subtitle D of RCRA - Managing Solid Waste

Section III: Subtitle C of RCRA - Managing Hazardous Waste

  Chapter 1 — What is Hazardous Waste?

  Chapter 2 — Regulations Applicable to Generators of Hazardous Waste

  Chapter 3 — Regulations Applicable to Transporters of Hazardous Waste

  Chapter 4 — Regulations Applicable to Treatment, Storage, and Disposal Facilities

  Chapter 5 — Permitting

  Chapter 6 — Enforcement

  Chapter 7 — State Authorization

Section IV: Subtitle I of RCRA - Managing Underground Storage Tanks

Section V: Subtitle J of RCRA - Managing Medical Waste

Section VI: RCRA and its Relationship to Other Environmental Statutes

Section VII: Public Participation

SUMMARY

RCRA was passed in 1976, as an amendment to the Solid Waste Disposal Act of 1965, to ensure that solid wastes are managed in an environmentally sound manner. The broad goals set by RCRA are to:

- Protect human health and the environment

- Reduce waste and conserve energy and natural resources

- Reduce or eliminate the generation of hazardous waste as expeditiously as possible.

To achieve these goals, four distinct yet interrelated programs exist under RCRA:

- Subtitle D — Promotes and encourages the environmentally sound management of solid waste. It includes minimum Federal technical standards and guidelines for State solid waste plans.

- Subtitle C—Establishes a management system that regulates hazardous waste from the time it is generated until its ultimate disposal, in effect from "cradle-to- grave."

- Subtitle I — Regulates petroleum products and hazardous substances (as defined under Superfund) that are stored in underground tanks.

- Subtitle J— Regulates medical waste generation, treatment, destruction, and disposal.

There are several components of RCRA:

- Act — Describes, in statutory language, the kind of waste management program that Congress wants to establish. The Act also provides the Administrator of EPA (or his or her designee) with the authority to implement the Act.

- Regulations—The legal mechanism that establishes standards or imposes requirements to carry out the Act. Authority for developing regulations is found in the Act. Regulations are published in the Federal Register and codified in the Code of Federal Regulations.

- Guidance — Developed and issued by EPA (or the States) to provide instructions on how to implement requirements of either the Act or regulations.

- Policy — Statements developed by EPA (or the States) outlining a position on a topic or giving instructions on how a procedure should be conducted.

RCRA continues to change with amendments to the statute. These amendments significantly expand both the scope (e.g., the creation of Subtitle J) and detailed requirements of the Act.

SECTION II

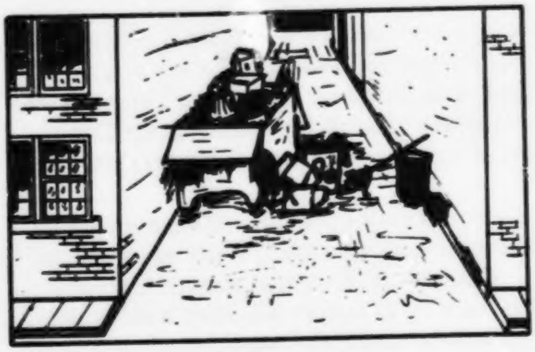
SUBTITLE D OF RCRA - MANAGING SOLID WASTE

- **OVERVIEW**
- **DEFINITION OF SOLID WASTE**
    - Exceptions to the Definitions of Solid Waste
- **MANAGEMENT OF SOLID WASTE UNDER SUBTITLE D**
    - Criteria for Classification of Solid Waste Disposal Facilities and Practices
    - State Plan Guidelines
- **EXEMPTIONS FROM THE SUBTITLE D CRITERIA**
- **NEW DIRECTIONS**
    - Report to Congress
    - Subtitle D Criteria Revisions
    - Municipal Solid Waste Agenda for Action
- **SUMMARY**

SECTION II SUBTITLE D OF RCRA - MANAGING SOLID WASTE

OVERVIEW

Congress enacted the Solid Waste Disposal Act of 1965, which established grant programs for the development of solid waste management plans by States and/or interstate agencies. Subsequent amendments to the Solid Waste Disposal Act — the Resource Recovery Act of 1970, RCRA in 1976, and HSWA in 1984 — have substantially increased the Federal government's involvement in solid waste management. However, the Subtitle D program continues to be implemented principally by State and local governments.



Solid Waste Management Objectives:

- **Encourage environmentally sound solid waste management practices**
- **Maximize the re-use of recoverable resources**
- **Foster resource conservation**

The term "solid waste" used in Subtitle D refers almost exclusively to nonhazardous solid waste. The bulk of the statutory and regulatory requirements covering the handling and disposition of most hazardous solid waste falls under Subtitle C of RCRA, which is addressed in Section III.

The primary objectives of Subtitle D as outlined in Section 4001 of the Act "are to assist in developing and encouraging methods for the disposal of solid waste which are environmentally sound and which maximize the utilization of valuable resources including energy and materials, which are recoverable from solid waste and to encourage resource conservation." To achieve these objectives, the 1976 statutory amendments mandated that EPA develop criteria for the classification of solid waste disposal facilities and practices (Section 4004) and established a framework for State solid waste management plans (Sections 4002, 4003, 4006, and 4007).

EPA promulgated the criteria (40 CFR Part 257) on September 13, 1979. These criteria establish standards for determining whether solid waste disposal facilities and practices may pose adverse effects on human health and the environment. Facilities that fail to meet the criteria are "open dumps" (as referred to in Section 4005 of RCRA) for purposes of State solid waste management planning efforts under Subtitle D. The criteria provide the basis for enforcing the prohibition on "open dumps" and may be used by citizens to sue in Federal District Court.

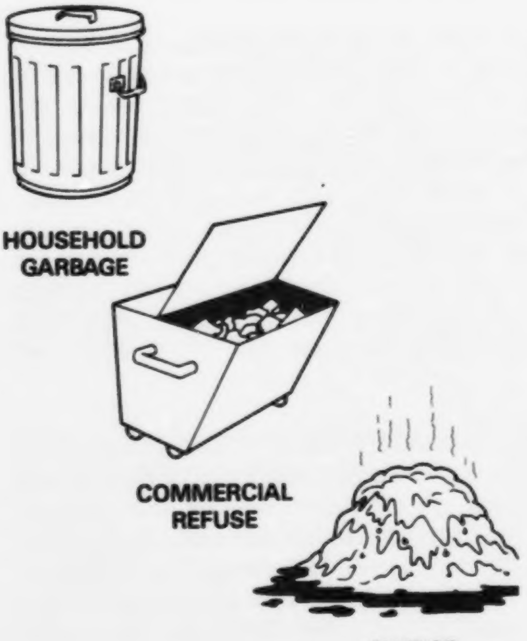
EPA published guidelines for State solid waste management plans (40 CFR Part 256) on July 31, 1979. Using these guidelines, States began developing plans and submitting the them to EPA for approval. EPA's role with respect to State plans is limited to establishing the guidelines for their development, providing technical assistance, and approving plans that comply with these requirements. The main responsibility for developing and implementing State plans lies with each State.

This section presents an outline of the Subtitle D program. In doing so, it defines the term "solid waste"; describes how State plans are developed, approved, and implemented; reviews the current Subtitle D Criteria; lists exemptions from the Criteria; and acknowledges new directions for the Subtitle D program.

DEFINITION OF SOLID WASTE

The term "solid waste" is very broad, including not only the traditional nonhazardous solid wastes, such as municipal garbage, but also hazardous solid wastes. Subtitle C regulates hazardous wastes; Subtitle D covers all other solid wastes. Subtitle D covers certain hazardous wastes excluded from regulation under Subtitle C, e.g., household hazardous wastes and hazardous wastes generated by small quantity generators. (Subtitle C wastes are discussed in Section III.) Section 1004 (27) of the Act defines solid waste as:

- Garbage, e.g., milk cartons and coffee grounds
- Refuse, e.g., metal scrap, wall board, and empty containers
- Sludge from a waste treatment plant, water supply treatment plant, or pollution control facility, e.g., scrubber sludges
- Other discarded material, including solid, semisolid, liquid, or contained gaseous material resulting from industrial, commercial, mining, agricultural, and community activities, e.g., boiler slag, fly ash.



To understand the RCRA definition of solid waste, keep in mind that not all solid waste is solid. As noted above, many solid wastes are liquid, while others are semisolid or gaseous.

Exceptions to the Definition of Solid Waste

If the definition were limited to that given above, just about every type of waste produced by man would qualify as solid waste. This, however, is not the case, and Section 1004(27) contains a number of exceptions to the definition. Specifically, the following materials are not considered solid waste under RCRA:

- Domestic sewage (defined as untreated sanitary wastes that pass through a sewer system)
- Industrial wastewater discharges regulated under the Clean Water Act
- Irrigation return flows
- Nuclear materials, or by-products, as defined by the Atomic Energy Act of 1954.

MANAGEMENT OF SOLID WASTE UNDER SUBTITLE D

Subtitle D establishes a solid waste management framework that has two main components:

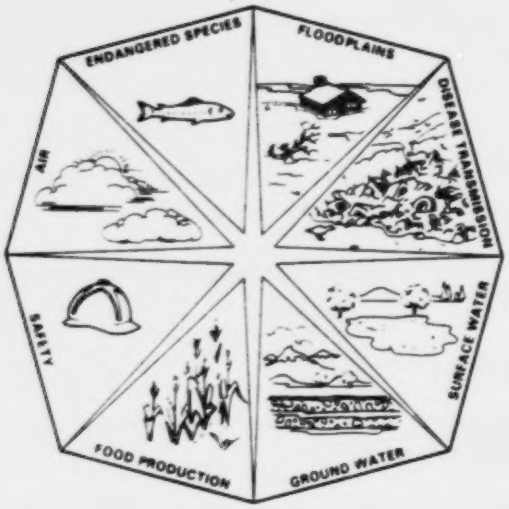
1) Criteria for classification of solid waste disposal facilities and practices
2) Guidelines for the development and implementation of State plans.

Criteria for Classification of Solid Waste Disposal Facilities and Practices

The first component of the Subtitle D program is the "Criteria for Classification of Solid Waste Disposal Facilities and Practices," commonly called the "Subtitle D Criteria" (40 CFR Part 257). The Criteria are used to determine which solid waste disposal facilities and practices pose a reasonable probability of adverse effects on health and the environment. Facilities failing to satisfy criteria are considered open dumps for purposes of State solid waste management planning.

The 40 CFR Part 257 Criteria include general environmental performance standards addressing eight major topics: Floodplains, endangered species, surface water, ground water, land application, disease, air, and safety. A brief summary of these provisions follows.

40 CFR 257.3-1 specifies that facilities or practices in floodplains shall not interfere with the floodplain or result in washout of solid waste so as to pose a hazard to human life, wildlife, or land or water resources. 40 CFR 257.3-2 prohibits



Areas Covered by the Subtitle D Criteria

solid waste disposal facilities and practices that cause or contribute to the taking of any endangered or threatened species or result in the destruction or adverse modification of the critical habitats of such species. The surface water provision, 40 CFR 257.3-3 specifies that disposal facilities shall not cause a discharge of pollutants or dredged or fill material to waters of the United States. To do so is in violation of Section 402 or Section 404 of the Clean Water Act. 40 CFR 257.3-4 lays out the ground-water protection standards, which require that facilities and practices not exceed the Safe Drinking Water Act Maximum Contaminant Levels (MCLs) in an underground drinking water source beyond the solid waste unit boundary or beyond an alternative boundary specified by the State.

40 CFR 257.3-5 requires that a facility or practice meet certain restrictions with respect to the concentrations of cadmium and polychlorinated biphenyls (PCBs) contained in waste applied to land used for producing food crops. 40 CFR 257.3-6 specifies that waste disposal facilities and practices must institute appropriate disease vector controls, such as periodic application of cover material. In addition, 40 CFR 257.3-6 requires pathogen reduction processes for sewage sludges and septic tank pumpings applied to land.

The air criterion in 40 CFR 257.3-7 prohibits open burning of solid waste (with certain exceptions) and specifies that the applicable requirements of the State Implementation Plans developed under Section 110 of the Clean Air Act must be met. Finally, the safety provisions of 40 CFR 257.3-8 require control of explosive gases, fires, bird hazards to aircraft, and public access to the facility.

The Part 257 Criteria serve as minimum technical standards for solid waste disposal facilities. Facilities must comply with the Part 257 Criteria to ensure that ongoing operations protect human health and the environment. If they fail to do so, the facility is classified as an open dump and must upgrade its operations or close. Part 257 applies to facilities in all States, regardless of the existence of an approved management plan. Furthermore, States have the option of developing criteria more stringent than the 40 CFR Part 257 Criteria. Compliance with Part 257 and the ban on dumping can be enforced through citizen suits (Section 7002 of the Act) or by the State.

In addition to serving as minimum technical standards, the Part 257 Criteria were used to identify open dumps. As mentioned above, an open dump is defined as a disposal facility that does not comply with one or more of the Subtitle D Criteria. Using the Criteria as a benchmark, each State evaluated the solid waste disposal facilities within its borders to determine which were open dumps and, therefore, needed to be closed or upgraded. For each facility that failed to comply with one or more of the Criteria, the State completed an Open Dump Inventory Report form that was sent to the Bureau of the Census. At the end of each fiscal year, the Bureau compiled all of the report forms and sent them to EPA, where they were summarized and published as the Inventory of Open Dumps. These inventories were published annually from 1981-1985.

State Plan Guidelines

Guidelines for State solid waste management plans are found in 40 CFR Part 256. The purpose of these guidelines is to assist States in developing and implementing EPA-approved solid waste management plans. Such plans serve to ensure environmentally sound solid waste management and disposal, resource conservation, and maximum utilization of valuable resources. The guidelines assist States by outlining the minimum requirements for State plans and detailing how these plans are approved by EPA. Although EPA-approved State plans all follow the guidelines on 40 CFR Part 256, not all State plans are identical. Each plan reflects a State's unique solid waste management needs.

STATE OF . . .
SOLID WASTE MANAGEMENT PLAN

The State plan must include the following elements as specified in the guidelines:

- Identifying the responsibilities of State, local, and regional authorities in implementing the plan
- Establishing a solid waste disposal program that prohibits new open dumps, provides for the closing or upgrading of all existing open dumps, and establishes any State regulatory powers necessary to implement the plan
- Developing a strategy for encouraging resource recovery and conservation activities

- Ensuring that adequate facility capacity exists to dispose of solid waste in an environmentally sound manner
- Coordinating with other environmental programs
- Ensuring public participation in plan development, regulatory development, facility permitting, and open dump inventory.

Once the plan has been developed and adopted by the State, it is submitted to EPA for approval. Within 6 months from the date of submittal, the Administrator must either approve or disapprove the plan. Approval is granted if the Administrator finds that the plan fulfills all of the minimum requirements set out in the guidelines.

EXEMPTIONS FROM THE SUBTITLE D CRITERIA

In accordance with 40 CFR 257.1 (C), certain solid waste disposal facilities or practices are exempted from complying with the Subtitle D Criteria, including:

- Agricultural wastes used as fertilizers or soil conditioners
- Domestic sewage applied to the land
- Hazardous waste disposal facilities regulated under Subtitle C of RCRA
- Industrial discharges that are point sources and subject to permits under Section 402 of the Clean Water Act.

NEW DIRECTIONS

RCRA Section 4010, as amended by HSWA, required EPA to conduct a study and submit a Report to Congress on the adequacy of certain solid waste guidelines and criteria. Specifically, EPA was required to determine whether the Criteria are adequate to protect human health and the environment from ground-water contamination. The report also was to evaluate the need for additional enforcement authorities for Subtitle D. Furthermore, EPA was required to revise the Criteria to address facilities that receive hazardous household waste or hazardous waste from small quantity generators (the definition of small quantity generators is discussed in Section III). Congress directed that, at a minimum, the revisions should require ground-water monitoring to detect contamination, establish criteria on the acceptable location of new or existing facilities, and provide for corrective action, as appropriate.

In addition to requiring revisions to the Criteria, HSWA directed States to establish permit programs, or other systems of prior approval and conditions, for facilities receiving household hazardous waste or hazardous waste from small quantity generators. These permit programs are meant to ensure that such facilities are in compliance with the existing 40 CFR Part 257 Criteria.

Report to Congress

In October 1988, EPA submitted to Congress its report on the adequacy of the existing Subtitle D Criteria. This report represented EPA's most comprehensive review of solid waste management in the U.S. in a decade. In preparing the report, EPA found that some 11 billion tons of solid waste - including agricultural, mining, oil and gas, industrial, as well as municipal solid wastes - are produced in the U.S. every year. These wastes are managed in an estimated 227,000 storage and disposal units, including surface impoundments, waste piles, landfills, and land treatment units. Environmental controls on these units vary widely.

The Report to Congress revealed that most information on solid waste management, available at the State and local level, is on municipal solid waste landfills (MSWLFs). The Agency learned that approximately 160 million tons of municipal solid waste are generated each year, 131 million tons of which are landfilled in just over 6,500 MSWLFs. Information on these landfills indicates that they vary widely in the use of environmental controls such as clay or synthetic liners, liquid (leachate) collection systems, and ground-water monitoring, and that they may pose significant threats to ground and surface water resources. The Report to Congress concluded that MSWLFs are adversely affecting the environment and that the current Subtitle D Criteria and State regulatory requirements are not adequate to address these problems.

Subtitle D Criteria Revisions

In HSWA, Congress required EPA (in Section 4010) to revise the existing Subtitle D Criteria for solid waste "facilities that may receive hazardous household waste or hazardous wastes from small quantity generators under Section 3001 (d)." Through information gathered for the Report to Congress on solid waste management, EPA determined that these wastes are disposed primarily in MSWLFs. Consequently, EPA proceeded first with revising the criteria for MSWLFs.

OPEN DUMP

In August 1988, EPA proposed revisions to the Subtitle D Criteria, regulating MSWLFs under 40 CFR Part 258 instead of Part 257. The proposed rule would significantly expand the current criteria contained in 40 CFR Part 257 and would set standards of performance for protecting human health and the environment to meet the HSWA mandate. Like the 40 CFR Part 257 Criteria, the revised criteria for MSWLFs will contain location and operating requirements for protecting air, surface, and ground-water resources.

EPA has attempted to retain a high degree of consistency between Part 257 and the proposed 40 CFR Part 258 by investing the primary responsibility for implementing the revised Part 258 Criteria with States. In fact, HSWA requires States to establish a permit program, or other system of prior approval and conditions, to ensure compliance with the revised Criteria within 18 months of their promulgation. If EPA determines, however, that a State program is not adequate to ensure compliance with the revised Criteria, the Agency may enforce the revised Criteria using the enforcement authorities of Sections 3007 and 3008 of Subtitle C of RCRA. EPA is continuing to collect information regarding other types of facilities (e.g., industrial solid waste facilities and construction demolition debris landfills) that may receive small quantity generator hazardous waste or may pose threats to human health or the environment. The revised Criteria are expected to be promulgated in Fiscal Year 1990.

Municipal Solid Waste Agenda for Action

Increasing attention at the Federal, State, and local levels is being directed at municipal solid waste management. Although primarily a local responsibility, the problems associated with municipal solid waste management are national in scope. Recognizing the need for a national response to the problem, EPA created a Municipal Solid Waste Task Force to develop a strategy for improving the nation's management of municipal solid waste.

After a year-long effort, the Task Force produced its report, "The Solid Waste Dilemma: An Agenda for Action," in February 1989. The Agenda provides a number of proposals for actions by EPA, States, local governments, industry, and the public. It identifies an integrated waste management hierarchy — combining the complementary use of source reduction, recycling, combustion, and landfills— as the best approach for comprehensively managing municipal solid waste.

The Task Force surveyed current municipal solid waste management practices and identified goals for sound national policy. Recognizing the ever-widening gap between declining waste management capacity and rising levels of waste generation, the Task Force determined that the nation must find "a safe and permanent way to eliminate the gap between waste generation and available capacity in landfills, combustion, and in secondary materials markets." The Task Force concluded that source reduction and recycling are the preferred options for closing this gap and reducing the amount and toxicity of waste. As a result, EPA established a national goal to divert 25 percent of the nation's municipal solid waste from landfills and combustors through source reduction and recycling by 1992. An equally important feature of the Agenda is strengthening the reliability and safety of all solid waste management options. The revised Criteria for MSWLFs, as well as other EPA rulemaking to improve the performance of municipal waste combustors, are part of this effort.

Finally, the Task Force identified objectives for national action to address the municipal solid waste dilemma. These objectives involve not only EPA efforts but the participation of State and local governments, industry, waste managers, and the public in implementing the concept of integrated waste management. These objectives include:

- Increasing the waste planning and management information (both technical and educational) available to States, local communities, waste handlers, citizens, and industry

- Increasing data collection on waste generation for research and development

- Increasing effective planning by waste handlers, local communities, and States

- Increasing source reduction activities by the manufacturing industry, government, and citizens
- Increasing recycling by government and by individual and corporate citizens
- Reducing the risks from municipal waste combustion in order to protect human health and the environment
- Reducing the risks from landfills in order to protect human health and the environment.

SUMMARY

To ensure that these objectives are properly addressed, the Agenda proposes an ambitious schedule of specific activities to be undertaken for each objective through 1991.

The Subtitle D program is implemented principally at the State and local level. While Subtitle C addresses hazardous solid waste, Subtitle D primarily addresses nonhazardous solid waste. Certain hazardous wastes excluded from Subtitle C regulation are covered by Subtitle D (e.g., household and small quantity generator hazardous wastes). The main goals of the Subtitle D program, as outlined in Section 4001 of RCRA, are to encourage solid waste management practices that:

- Promote environmentally sound disposal methods
- Maximize the reuse of recoverable resources
- Foster resource conservation.

To achieve these goals, RCRA establishes the framework for:

- A voluntary program under which participating States may develop solid waste management plans. Each plan must outline the steps States will take to ensure that:
  - Solid waste is properly managed
  - Resources are conserved and recovered (where possible)

  - Open dumps are closed or upgraded

- Technical standards for solid waste management facilities. The standards, commonly called the Subtitle D Criteria, are mandatory and establish minimum technical disposal requirements.

As a result of HSWA, the Part 257 Criteria are being revised to address facilities that receive household hazardous waste and small quantity generator hazardous waste. The States must develop a permit program, or other system of prior approval and conditions, to implement the Part 258 revised Criteria.

Recognizing that the municipal solid waste management problem requires a national response, EPA has launched an ambitious "Agenda for Action" to encourage integrated waste management. EPA has identified an integrated waste management hierarchy and encourages complementary use of source reduction, recycling, combustion, and landfills. EPA has set a national goal to reduce waste over 25 percent by 1992 by means of source reduction and recycling.

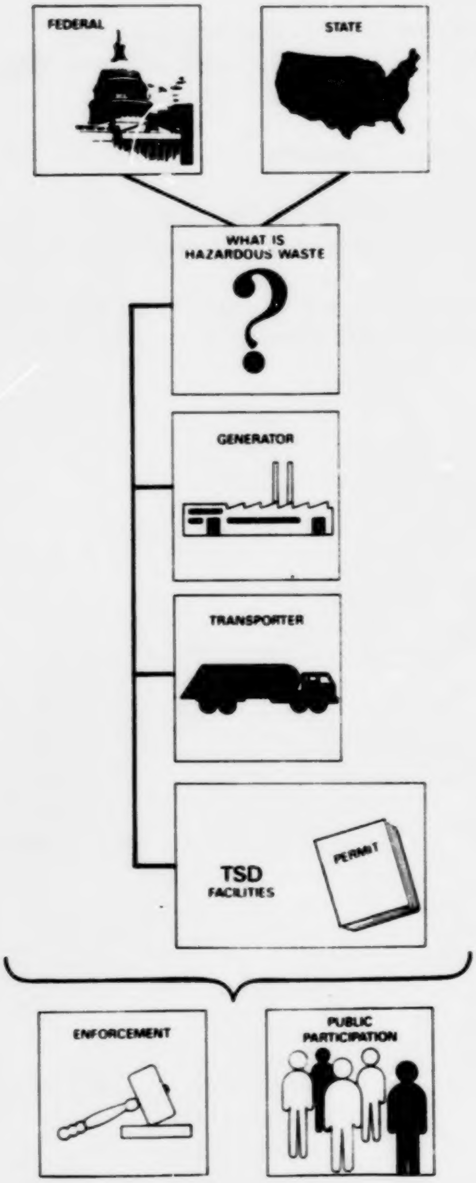
SECTION III

SUBTITLE C OF RCRA - MANAGING HAZARDOUS WASTE

- **CHAPTER 1 - WHAT IS HAZARDOUS WASTE?**
- **CHAPTER 2 - REGULATIONS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE**
- **CHAPTER 3 - REGULATIONS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE**
- **CHAPTER 4 - REGULATIONS APPLICABLE TO TREATMENT, STORAGE, AND DISPOSAL FACILITIES**
- **CHAPTER 5 - PERMITTING**
- **CHAPTER 6 - ENFORCEMENT**
- **CHAPTER 7 - STATE AUTHORIZATION**

SECTION III SUBTITLE C OF RCRA - MANAGING HAZARDOUS WASTE

OVERVIEW



The improper management of hazardous waste is probably one of the most serious environmental problems in the United States. In 1979, EPA estimated that only 10 percent of all hazardous waste was managed in an environmentally sound manner. The remainder was transported, treated, stored, or disposed of in a way that potentially threatens human health and the environment. Since that time, the amount of hazardous waste produced has steadily risen.

Mismanagement has potentially severe consequences: ground water — the source of drinking water for about half the nation's population — is polluted from the open dumping of wastes or from improperly operated landfills and surface impoundments. In some areas, residents obtain drinking water from other sources because ground-water supplies are so badly contaminated with toxic or cancer-causing chemicals and heavy metals.

Ground-water pollution is not the only problem posed by improper hazardous waste management. The improper disposal of hazardous waste has polluted streams, rivers, lakes, and other surface waters, killing aquatic life, destroying wildlife, and stripping areas of vegetation. In other cases, the vaporization of volatile organic materials from wastes that were improperly disposed of has been linked to respiratory illnesses, skin diseases (including skin cancer), and elevated levels of toxic materials in the blood and tissues of humans and domestic livestock. In still other cases, the mismanagement of hazardous waste has resulted in fires, explosions, or the generation of toxic gases that have killed or seriously injured workers and firemen.

The Subtitle C program developed under RCRA (Sections 3001 - 3019 of the Act) is designed to ensure that the mismanagement of hazardous waste does not continue. It does this by creating a Federal "cradle-to-grave" system to manage hazardous waste (including provisions for cleaning up releases) and to set forth statutory and regulatory requirements for:

- Identifying hazardous waste
- Generators of hazardous waste

- Transporters of hazardous waste
- Owners and operators of facilities that treat, store, or dispose of hazardous wastes
- Issuing operating permits to owners or operators of treatment, storage, and disposal facilities, and providing for corrective action for hazardous waste releases
- Enforcing the Subtitle C program
- Transferring the responsibilities of the Subtitle C program from the Federal government to the States.

The statutory and regulatory requirements entailed above are discussed and elaborated upon in separate chapters in this section.

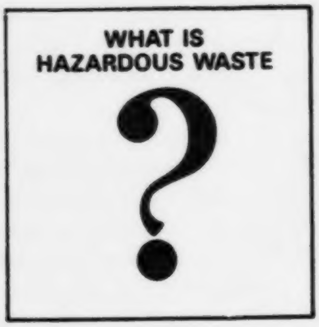
CHAPTER 1

WHAT IS HAZARDOUS WASTE?

- **OVERVIEW**
- **DEFINITION OF HAZARDOUS WASTE**
- **IDENTIFICATION OF HAZARDOUS WASTE**
- **CHARACTERISTICS**
  - Ignitability
  - Corrosivity
  - Reactivity
  - EP Toxicity
- **TESTING FOR HAZARDOUS WASTE CHARACTERISTICS**
- **LISTING OF HAZARDOUS WASTES**
- **HAZARDOUS WASTE MIXTURES**
- **WASTES SPECIFICALLY EXCLUDED FROM SUBTITLE C REGULATION**
- **WASTES DERIVED FROM HAZARDOUS WASTE**
- **WHEN DOES A HAZARDOUS WASTE CEASE BEING HAZARDOUS?**
- **MIXED WASTE REGULATION**
- **RELATIONSHIP TO STATE HAZARDOUS WASTE PROGRAMS**
- **SUMMARY**

CHAPTER 1 WHAT IS HAZARDOUS WASTE?

OVERVIEW

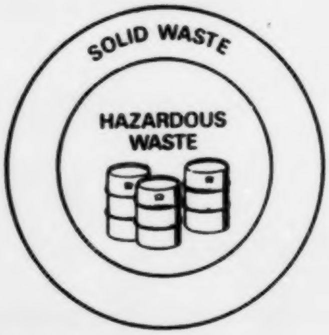


The regulatory framework established under Subtitle C was designed to protect human health and the environment from the effects of improper management of hazardous waste. Determining "what is a hazardous waste?" therefore, is a key question because only those wastes that are found to be hazardous are subject to Subtitle C regulations. Making this determination is a complex task. The universe of potential hazardous wastes is large and diverse, consisting of chemical substances, mixtures, generic waste streams, and specific products. Furthermore, wastes are potentially hazardous for different reasons. Congress addressed this problem by directing EPA (under Section 3001 of the Act) to develop and promulgate criteria for identifying the characteristics of hazardous waste and for listing particular wastes as hazardous.

It is upon this identification and listing of wastes that RCRA's Subtitle C program is based. All solid waste generators, from national manufacturers to the corner dry cleaners, must determine if their solid waste is hazardous and thus subject to regulation under Subtitle C.

This chapter defines the term "hazardous waste" and describes how EPA determines if a solid waste is hazardous. It also discusses those wastes specifically excluded from Subtitle C regulation.

DEFINITION OF HAZARDOUS WASTE



Congress defined the term "hazardous waste" in Section 1004(5) of RCRA as a "solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

1) Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness or

2) Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

Note that RCRA defines hazardous wastes in terms of properties of a solid waste. Therefore, if a waste is not a solid waste, as defined in Subtitle D, it cannot be a hazardous waste.

The amount of hazardous waste generated by American industries is staggering. A survey by EPA estimates that 275 million metric tons of hazardous waste were generated in 1985. This translates into over 1 ton of hazardous waste generated per person, per year. The vast majority of these wastes come from the chemical and petroleum industries. These industries alone generate 71 percent of all hazardous wastes produced. The remainder comes from a wide range of other industries, including metal finishing, general manufacturing, and transportation.

IDENTIFICATION OF HAZARDOUS WASTE

Although Congress defined the term "hazardous waste" in the Act, EPA was required to develop the regulatory framework that would identify those solid wastes that must be managed as hazardous wastes under Subtitle C. This framework (40 CFR Part 261), specifies that a solid waste is hazardous if it is not excluded from regulation as a hazardous waste and it meets any of the following conditions:

1) Exhibits any of the characteristics of a hazardous waste

2) Has been named as a hazardous waste and listed as such in the regulations

3) Is a mixture containing a listed hazardous waste and a nonhazardous solid waste

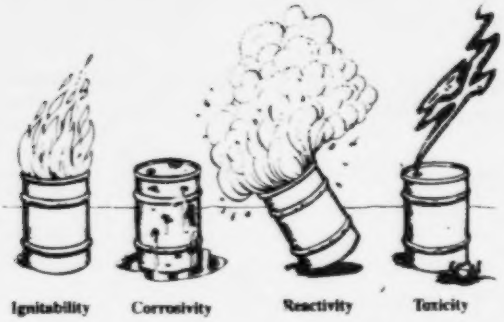
4) Is a waste derived from the treatment, storage, or disposal of a listed hazardous waste.

CHARACTERISTICS

EPA has identified four characteristics for hazardous waste. Any solid waste that exhibits one or more of these characteristics is classified as hazardous under RCRA:

- Ignitability
- Corrosivity
- Reactivity or
- Extraction Procedure (EP) Toxicity.

EPA considered two criteria in selecting these characteristics. The first criterion was that the characteristics be capable of



A waste is hazardous if it exhibits any of these four characteristics.

being defined in terms of physical, chemical, or other properties that cause the waste to meet the definition of hazardous waste in the Act. The second criterion was that the properties defining the characteristics be measurable by standardized and available testing protocols. The second criterion was adopted because the primary responsibility for determining whether a solid waste exhibits any of the characteristics rests with generators. EPA believed that unless generators were provided with widely available and uncomplicated methods for determining whether their wastes exhibited the characteristics, the identification system would prove unworkable.

Largely due to this second criterion, EPA has to date refrained from adding carcinogenicity, mutagenicity, bioaccumulation potential, and phytotoxicity to the set of characteristics. EPA considered the available test protocols for measuring these additional characteristics to be either insufficiently developed or too complex and too highly dependent on the use of skilled personnel and professional equipment. Additionally, given the current state of knowledge concerning such characteristics, EPA did not feel that it could define with any confidence the numerical threshold levels at which wastes exhibiting these characteristics would present a substantial hazard. As testing protocols become generally acceptable and EPA's confidence in setting minimum thresholds increases, more characteristics will be added.

40 CFR 261.20 through 261.24 defines the properties of wastes exhibiting any or all of the existing characteristics described below.

Ignitability

A solid waste that exhibits any of the following properties is considered a hazardous waste due to its ignitability:

- A liquid, except aqueous solutions containing less than 24 percent alcohol, that has a flash point less than 60° C (140° F)

- A nonliquid capable, under normal conditions, of spontaneous and sustained combustion

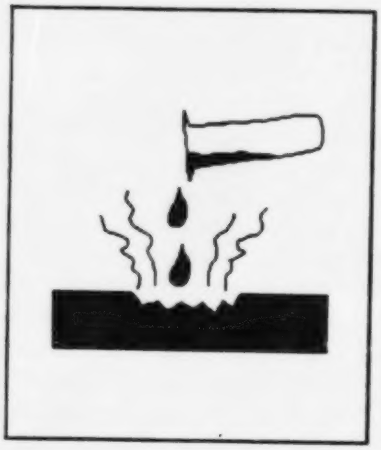
- An ignitable compressed gas per Department of Transportation (DOT) regulations or

- An oxidizer per DOT regulation.

EPA's reason for including ignitability as a characteristic was to identify wastes that could cause fires during transport, storage, or disposal. Examples of ignitable wastes include waste oils and used solvents.

Corrosivity

A solid waste that exhibits any of the following properties is considered a hazardous waste due to its corrosivity:

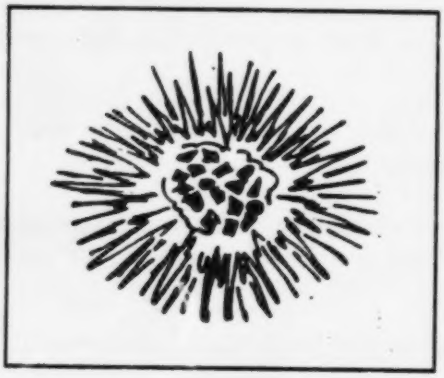


- An aqueous material with pH less than or equal to 2 or greater than or equal to 12.5 or
- A liquid that corrodes steel at a rate greater than 1/4 inch per year at a temperature of 55° C (130° F).

EPA chose pH as an indicator of corrosivity because wastes with high or low pH can react dangerously with other wastes or cause toxic contaminants to migrate from certain wastes. It chose steel corrosion because wastes capable of corroding steel can escape from their containers and liberate other wastes. Examples of corrosive wastes include acidic wastes and used pickle liquor (employed to clean steel during its manufacture).

Reactivity

A solid waste that exhibits any of the following properties is considered a hazardous waste due to its reactivity:



- Normally unstable and reacts violently without detonating
- Reacts violently with water
- Forms an explosive mixture with water
- Generates toxic gases, vapors, or fumes when mixed with water
- Contains cyanide or sulfide and generates toxic gases, vapors, or fumes at a pH of between 2 and 12.5
- Capable of detonation if heated under confinement or subjected to strong initiating source

- Capable of detonation at standard temperature and pressure or

- Listed by DOT as Class A or B explosive.

Reactivity was chosen as a characteristic to identify unstable wastes that can pose a problem at any stage of the waste management cycle, e.g., an explosion. Examples of reactive wastes include water from TNT operations and used cyanide solvents.

EP Toxicity

The term EP toxicity often confuses newcomers to the program because, in addition to referring to a characteristic of a waste, it also refers to a test. The test, called the extraction procedure (EP), is designed to identify wastes likely to leach hazardous concentrations of particular toxic constituents into the ground water as a result of improper management.

During the procedure, constituents are extracted from the waste in a manner designed to simulate the leaching actions that occur in landfills. The extract is then analyzed to determine if it possesses any of the toxic contaminants listed in Figure 1.1. If the concentrations of the toxic constituent exceed the levels listed in Figure 1.1, the waste is classified as hazardous.

The EP toxicity test has been criticized because of its failure to adequately simulate the flow of toxic contaminants to drinking water. Under HSWA, Congress directed EPA to examine the EP toxicity test to determine if modifications or additions could improve it as a diagnostic tool. EPA plans to replace the test with the Toxicity Characteristic Leaching Procedure (TCLP) test in the near future.

Constituent	Concentration mg/l
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Chromium	5.0
Lead	5.0
Mercury	0.2
Selenium	1.0
Silver	5.0
Endrin	0.02
Lindane	0.4
Methoxychlor	10.0
Toxaphene	0.5
2,4 - D	10.0
2,4,5 - TP	1.0

Figure 1.1
Constituents and Concentrations for EP Toxicity

TESTING FOR HAZARDOUS WASTE CHARACTERISTICS

The responsibility for determining if a particular solid waste is hazardous falls on the generators. If a solid waste is neither excluded nor listed, as discussed in the following pages, generators must either test their waste using standard methods (specified in 40 CFR Part 261) or have sufficient knowledge about their waste to assess whether it exhibits any of the characteristics. If the waste does exhibit a characteristic, then it is hazardous and must be handled accordingly. Tests must be applied to each individual waste and cannot be used to assess a type of waste (other than to define the waste generically as hazardous). This provision was established to prevent a national company from making one waste determination and using the results nationwide, masking potential regional variations. The tests must also be run on representative samples to obtain results that adequately characterize the nature of the waste.

LISTING OF HAZARDOUS WASTES

There are Three Lists of Hazardous Wastes:

- **Non-specific source wastes**
- **Specific source wastes**
- **Commercial chemical products.**

A solid waste is hazardous if it is named on one of three lists developed by EPA:

1) Nonspecific source wastes (40 CFR 261.31) - These are generic wastes, commonly produced by manufacturing and industrial processes. Examples from this list include spent halogenated solvents used in degreasing and wastewater treatment sludge from electroplating processes as well as dioxin wastes, most of which are "acutely hazardous" wastes due to the danger they present to human health and the environment.

2) Specific source wastes (40 CFR 261.32) -This list consists of wastes from specifically identified industries such as wood preserving, petroleum refining, and organic chemical manufacturing. These wastes typically include sludges, still bottoms, wastewaters, spent catalysts, and residues, e.g., wastewater treatment sludge from pigment production.

3) Commercial chemical products (40 CFR 261.33(e) and (f)), also called "P" and "U" list wastes) - The third list consists of specific commercial chemical products, or manufacturing chemical intermediates. This list includes chemicals such as chloroform and creosote, acids such as sulfuric acid and hydrochloric acid, and pesticides such as DDT and kepone.

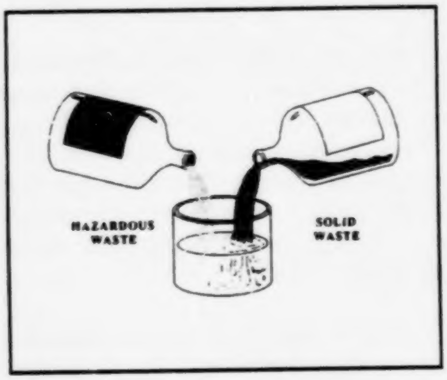
EPA developed these lists by examining different types of wastes and chemical products to see if they met any of the following criteria:

- Exhibit one of the four characteristics of a hazardous waste
- Meet the statutory definition of hazardous waste

- Are acutely toxic or acutely hazardous or
- Are otherwise toxic.

HAZARDOUS WASTE MIXTURES

One of the questions that faced EPA when setting the conditions for identifying hazardous wastes was how to classify a waste mixture that contains both a listed hazardous waste and a nonhazardous solid waste. EPA decided that any waste mixture containing a listed hazardous waste is considered a hazardous waste and must be managed accordingly. This applies regardless of what percentage of the waste mixture is composed of listed hazardous wastes. Without such a regulation, generators could evade Subtitle C requirements simply by commingling listed wastes with nonhazardous solid waste. Most of these waste mixtures would not be caught by the four Subtitle C characteristics because they would contain wastes which were listed for reasons other than exhibiting the characteristics, e.g., they are acutely toxic. Allowing this situation would leave a major loophole in the Subtitle C management system and create inconsistencies in how wastes are managed under that system. However, a few exceptions to the mixture rule outlined above follow:



- If a wastewater discharge subject to regulation by the Clean Water Act is mixed with low concentrations of a listed waste, as specified in 40 CFR 261.3, the resultant mixture is not considered a listed hazardous waste. Of course, if such a mixture exhibited one of the characteristics, it would be deemed hazardous.
- Mixtures of nonhazardous wastes and listed wastes that were listed for exhibiting a characteristic are not considered hazardous if the mixture no longer exhibits any of the characteristics set forth in Subpart C of 40 CFR Part 261.
- Mixtures of nonhazardous wastes and characteristic hazardous wastes are not considered hazardous if the mixture no longer exhibits any of the characteristics set forth in Subpart C of 40 CFR Part 261.
- Certain concentrations of spent solvents and laboratory wastewater that are discharged in low concentrations and do not pose a threat to human health or the

environment are excepted.

- De minimis losses of discarded commercial chemical products or intermediaries used as raw materials in manufacturing or produced as by-products are excepted. These include minor losses from spills and transfer of materials, process leaks, and similar incidental discharges.

An additional exemption from the mixture rule has been granted to the petroleum refining industry for heat exchanger bundle cleaning sludge.

WASTES DERIVED FROM HAZARDOUS WASTE

Another question that EPA faced was how to classify residues from the treatment, storage, or disposal of a listed hazardous waste. The Agency decided that any residue derived from a listed hazardous waste is considered a hazardous waste. EPA established this rule because it is reasonable to assume that wastes derived from hazardous wastes are themselves hazardous unless it can be shown that they do not pose a threat to human health and the environment.

Congress decided that certain wastes should not be regulated as hazardous waste, thereby being "excluded" from Subtitle C regulation. Specifically, Congress outlined:

- Materials which are not solid wastes
- Solid wastes which are not to be considered hazardous waste
- Hazardous waste specifically exempted from regulation
- Waste requiring further study before being regulated as hazardous.

WASTES SPECIFICALLY EXCLUDED FROM SUBTITLE C REGULATION

A generator of solid waste should first determine if the waste is specifically excluded from Subtitle C regulation. If the waste is not excluded, the generator must determine if the waste is hazardous.

Excluded wastes include a number of common solid wastes that do not present a significant threat to human health or the environment or are currently managed under other programs

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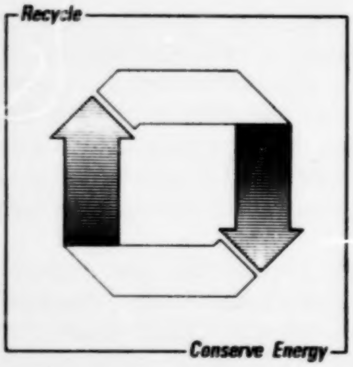
in a way that minimizes any threat to human health or the environment, (e.g., household wastes, municipal resource recovery wastes, agricultural wastes, and mining overburden returned to the mine site).

Congress exempted certain solid wastes from consideration as hazardous waste. These wastes are detailed in 40 CFR 261.4(b). A few of these wastes provisionally exempted included oil and gas production wastes, mining wastes, wastes from the combustion of coal or other fossil fuels, and cement kiln dust waste. To determine if these wastes should be regulated at all, Congress, under Section 8002 of the Act, directed EPA to conduct studies and report on whether the results indicate that the wastes should be regulated under Subtitle C. EPA completed several of these "large volume" studies. As a result, EPA recently determined that regulation of wastes from the development and production of crude oil, natural gas, and geothermal energy is not warranted under Subtitle C. Instead, EPA has chosen to expand existing regulatory programs under Subtitle D, the Clean Water Act, and the Safe Drinking Water Act. EPA has also determined that regulation under Subtitle C of mining wastes (referred to as "Bevill Wastes") from extraction and beneficiation currently is not warranted. Instead, the Agency plans to develop a program to regulate these mining wastes under Subtitle D of RCRA. Other mining wastes and processing wastes are still being studied and are provisionally exempt from Subtitle C.

Additional solid waste streams that are excluded from consideration as hazardous wastes include: household waste, solid waste returned to the soil as fertilizers, various chromium-containing wastes, and discarded arsenical-treated wood. Hazardous wastes generated in raw material or manufacturing process units are excluded until the wastes leave those units or until the waste remains in an inactive unit longer than 90 days. Wastes sent to laboratories or treatment facilities for treatability studies also are excluded if the stringent provisions of 40 CFR 261.4(d) are followed.

Certain residues of hazardous waste in empty containers also are excluded from regulation under Subtitle C. Specifically, any hazardous waste remaining in a liner or empty container is exempt if all of the waste has been removed by methods such as pumping or pouring. Additionally, no more than 2.5



centimeters of waste can remain in the bottom of the container, or less than 3 percent by weight if the container is under 110 gallons, less than 0.3 percent if over 110 gallons. Special requirements apply if the waste is acutely hazardous. The liner or container must be triple rinsed or cleaned by an equally effective method. The rinsate then must be handled as a hazardous waste.

EPA amended Congress' list of exempted wastes with certain chromium-containing wastes and laboratory samples. Language excluding these wastes from RCRA regulation is contained in 40 CFR 261.4(a).

Consistent with RCRA's mandate to foster resource recovery, the regulations exempt some secondary materials from RCRA when they are recycled using certain procedures. The exemption is based upon the type of secondary material being recycled and the recycling process used. 40 CFR 261.2, Table 1 identifies classes of secondary materials including:

- Spent Materials - Materials that have been used and can no longer serve their original purpose without reprocessing

- Sludges - Residues from treatment of air emmissions or wastewater pollution control operations

- By-products - Residual materials from industrial, commercial, mining, and agricultural operations

- Commercial Chemical Products - Chemical products and intermediates, and

- Scrap Metal - Bits and pieces of metal from metal processing operations or consumer use.

When recycled, using one of the following processes, some secondary materials are exempted from RCRA regulation.

- Reclamation - Reprocessing to recover a usable product, and

- Speculative Accumulation - Accumulation without evidence of recycling or recyclability.

Similarly, RCRA exempts (40 CFR 261.6) or reduces the regulatory requirements (40 CFR Part 266) for certain hazardous waste recyclable materials or recycling procedures. These provisions are addressed in Section III, Chapter 4.

WHEN DOES A HAZARDOUS WASTE CEASE BEING HAZARDOUS?

EPA recognized that its procedures for listing hazardous wastes might not be applicable in all cases. To provide for these cases, EPA created a process called delisting that allows any person, e.g., waste handler or general public, to petition EPA to exclude a listed waste from regulation under Subtitle C. For petitioners to get wastes delisted they must prove to EPA that the wastes are not hazardous because of facility-specific variations in raw materials, processes, or other factors. In evaluating a delisting petition, EPA must consider factors including constituents other than those for which the waste was listed, if EPA has a reasonable basis to believe that such additional factors could cause the waste to be a hazardous waste. If, upon evaluation, EPA determines that the waste is not hazardous due to conditions at the facility, that waste is removed from Subtitle C's regulatory jurisdiction. Delisting is done on a case-by-case basis. Therefore, if a waste is delisted at one facility, it is not automatically delisted at other facilities.

Facilities that treat listed wastes often want to show that the treated listed waste is no longer hazardous. For example, treating some hazardous waste by incineration may be cost effective only if the resulting ash is not considered a hazardous waste. If this demonstration has been successfully made, the wastes may be disposed outside the purview of Subtitle C. The concept of delisting is central to this demonstration. The owner or operator must conduct studies to show that, once treated, the listed hazardous waste is no longer hazardous.

Characteristic wastes automatically cease being considered hazardous wastes when they cease to exhibit any characteristic. It is also worth noting that the "mixture" and "derived-from" rules do not apply to characteristic wastes. (Of course, if mixtures or residues themselves exhibit a characteristic, they are considered hazardous wastes.)

MIXED WASTE REGULATION

One of the more difficult issues facing EPA and States is the regulation of mixtures of radioactive and hazardous waste

(Mixed Waste). Since Mixed Waste is considered hazardous under RCRA and radioactive under the Atomic Energy Act, both the Nuclear Regulatory Commission (NRC) and EPA work together to address the management of these wastes.

Mixed Waste is most often produced by laboratories and by nuclear energy production (source, special nuclear or by-product material wastes). Laboratories may produce scintillation solvents containing organic reagents and low-level radioactive wastes. In nuclear energy production, discarded lead shielding and cooling materials may contain heavy metals and radioactive wastes.

Generators of Mixed Waste must comply not only with the minimum technical requirements of RCRA, but also with the NRC regulations as well. Thus, since the hazardous and radioactive waste components cannot be readily separated, the design of facilities, drafting of operating requirements for RCRA permits or NRC Licenses, and the development of cleanup solutions must be done in a manner that adequately addresses the hazards posed by both the radioactive and hazardous components of the waste.

RELATIONSHIP TO STATE HAZARDOUS WASTE PROGRAMS

A State that has been delegated the Subtitle C program is considered to be "authorized." This means that one must comply with the State laws. The Federal waste identification framework sets a baseline standard with which all States must comply. Frequently, many States choose to adopt and apply more stringent requirements. For example, waste oil is not yet listed as a hazardous waste under the Federal RCRA program. However, many States regulate used oil as a hazardous waste. Therefore, understanding whether Federal or State requirements are applicable is important.

SUMMARY

All solid waste generators must determine if their waste is hazardous and, therefore, subject to regulation under Subtitle C. The Subtitle C regulations specify that a solid waste is hazardous if it is not excluded and meets one of four conditions:

1) Exhibits any of four characteristics:

   - Ignitability

   - Corrosivity

- Reactivity, or
- EP Toxicity.

2) Is listed

3) Is a mixture, or

4) Is derived from the treatment, storage, or disposal of a listed waste.

Through delisting, any person may petition EPA to exclude a listed waste from regulation under Subtitle C.

The recycling of hazardous waste may, under certain circumstances, exempt it from Subtitle C regulation.

CHAPTER 2

REGULATIONS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

- **OVERVIEW**
- **WHO ARE THE REGULATED GENERATORS?**
  - Large Quantity Generators
  - Small Quantity Generators
  - Conditionally Exempt Small Quantity Generators
- **REGULATORY REQUIREMENTS**
  - EPA ID Number
  - Pre-Transport Regulations
  - Accumulation of Waste
  - The Manifest
  - Recordkeeping and Reporting
  - Biennial Reporting
  - Exception Reports
  - Three-Year Retention of Reports, Manifests, and Test Records
- **LAND DISPOSAL RESTRICTIONS**
  - Generator Requirements
  - Recordkeeping Requirements
- **ADDITIONAL GENERATOR REQUIREMENTS AND EXCLUSIONS**
  - International Shipments
  - Farmer Exclusion
- **SUMMARY**

CHAPTER 2 REGULATIONS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

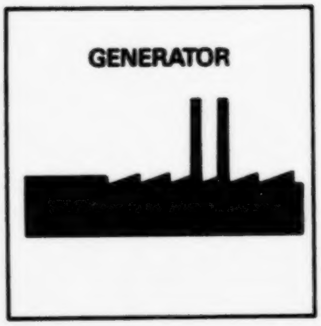
OVERVIEW

Generators of hazardous waste are the first link in the "cradle-to-grave" chain of hazardous waste management established under RCRA. Generators of more than 100 kilograms of hazardous waste or 1 kilogram of acutely hazardous waste per month must (with a few exceptions) comply with all of the generator regulations developed under Subtitle C (40 CFR Part 262). Subtitle C requires generators to ensure and fully document that the hazardous waste they produce is properly identified and transported to a RCRA treatment, storage, of disposal facility (TSDF).

WHO ARE THE REGULATED GENERATORS?

The Subtitle C regulations broadly define the term "generator" to include any:

- Facility owner or operator or person who first creates a hazardous waste, or
- Person who first makes the waste subject to the Subtitle C regulations (e.g., imports a hazardous waste, initiates a shipment of a hazardous waste from a TSDF, or mixes hazardous wastes of different DOT shipping descriptions by placing them into a single container).



To define the subset of solid waste generators that must comply with Subtitle C generator regulations, it is necessary to distinguish between generators who produce or handle nonhazardous solid waste and ones that produce or handle hazardous solid waste. Subtitle C separates these two groups by requiring all generators of solid waste to determine whether any of their waste is hazardous using the procedures outlined in 40 CFR Part 261. Once a generator determines that all or part of the waste produced is hazardous, he must comply with the regulatory requirements of Subtitle C.

Under RCRA, there are three categories of hazardous waste generators:

- Large quantity generators
- Small quantity generators
- Conditionally exempt small quantity generators.

Large Quantity Generators

Early in the development of the RCRA program EPA recognized that hazardous waste regulations impose a substantial burden on the regulated community. Thus, in issuing waste regulations, EPA first focused on those generators that produce the greatest volumes of hazardous waste.

Large quantity generators are defined as those facilities that generate:

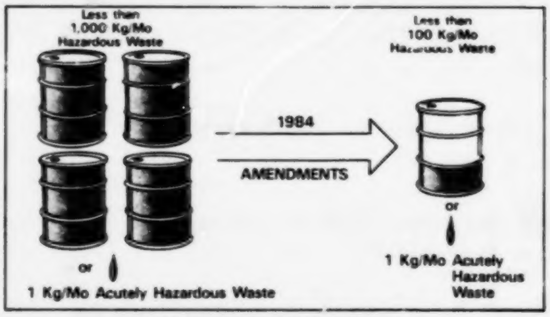
- Over 1,000 kilograms per month of hazardous waste, or
- Over 1 kilogram of acutely hazardous waste per month.

Large quantity generators produce the greatest volume of hazardous waste in the United States. EPA's 1985 biennial survey of generators estimated that 274 of the 275 million metric tons of hazardous waste came from large quantity generators.

Small Quantity Generators

The initial EPA regulations, published on May 19, 1980, exempted "small quantity generators" (SQGs) from most of the hazardous waste requirements. (Note: this group of generators is often referred to by the phonetic use of the acronym SQG - "squee-gee"). A small quantity generator was defined as a generator who produced:

- Less than 1,000 kilograms of hazardous waste at a site per month (or accumulated less than 1,000 kilograms at any one time)
- Less than 1 kilogram of acutely hazardous waste per month (or accumulated less than 1 kilogram at any one time).



CHANGES IN SMALL QUANTITY
GENERATOR EXEMPTION

Because of concern that hazardous waste exempted from regulation due to the SQG exclusion could be causing environmental harm, Congress amended the definition of SQGs in HSWA, reducing the cut-off point from 1,000 kilograms to 100 kilograms. Thus the revised definition of SQG is a generator who produces:

- Greater than 100 but less than 1,000 kilograms of hazardous waste at a site per month (and accumulates less than 6,000 kilograms at any one time)

- Less than 1 kilogram of acutely hazardous waste per month (and accumulates less than 1 kilogram at any one time).

Because SQGs produce such a small portion of the nation's hazardous waste, Congress was concerned that full regulation might be economically burdensome and inappropriate. Thus, Congress gave EPA authority to vary the regulatory requirements applicable to SQGs from those applied to large generators, provided that the requirements were still protective of human health and the environment.

SQGs who store more than 6,000 kilograms of their waste on-site must meet all large quantity generator requirements. Generators of more than 1,000 kilograms of hazardous waste per month or 1 kilogram of acutely hazardous waste per month must, as was the case before the amendments, meet the large quantity generator requirements.

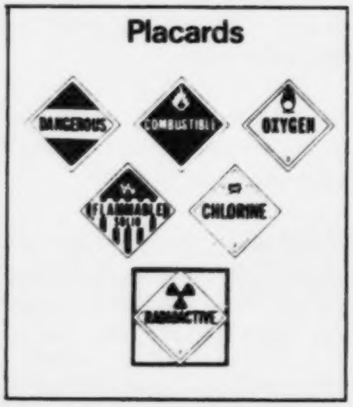
Conditionally Exempt Small Quantity Generators

Currently, a facility that generates less than 100 kilograms per month of hazardous waste and less than 1 kg per month of acutely hazardous waste is "conditionally exempt" from full regulation under Subtitle C. The conditionally exempt SQG, however, must still:

- Identify the waste to determine whether it is a hazardous waste
- Not accumulate more than 1,000 kilograms of hazardous waste at any time
- Treat or dispose of the waste on site, or ensure that the waste is sent to a:
  - Permitted or interim status TSDF, or
  - Permitted municipal or industrial solid waste facility, or
  - Recycling facility.

Conditionally exempt SQGs who exceed the 100 kg per month hazardous waste cut-off are regulated as a SQG. Conditionally exempt SQGs that generate in excess of 1 kg per month of acutely hazardous waste are regulated as large quantity generators. It is important to note that State classification of generators may be different from those outlined above. Some States regulate all generators of hazardous waste (i.e., there is no exempt category) and some States classify generators by waste type rather than by volume.

REGULATORY REQUIREMENTS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Large and small quantity generators are subject to regulations contained in 40 CFR Part 262. Such regulations require:

- Obtaining an EPA ID number
- Preparing the waste for transportation
- Following accumulation and storage requirements
- Manifesting of hazardous waste
- Recordkeeping and reporting.

Each requirement is discussed below with different requirements for large and small quantity generators noted where appropriate.

EPA ID Number

One way that EPA monitors and tracks generators is to assign each generator a unique identification number. Without this number the generator is barred from treating, storing, disposing of, transporting, or offering for transportation any hazardous waste. Furthermore, the generator is forbidden from offering his or her hazardous waste to any transporter, or treatment, storage, or disposal facility that does not also have an EPA ID number.

Pre-Transport Regulations

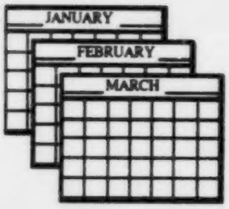
Pre-transport regulations are designed to ensure safe transportation of a hazardous waste from origin to ultimate disposal. In developing these regulations, EPA adopted those used by the Department of Transportation (DOT) for transporting hazardous materials (49 CFR Parts 172, 173, 178, and 179). These DOT regulations require:

- Proper packaging to prevent leakage of hazardous waste, during both normal transport conditions and potentially dangerous situations, e.g., when a drum falls out of a truck
- Labeling, marking, and placarding of the packaged waste to identify the characteristics and dangers associated with transporting wastes.

These pre-transport regulations only apply to generators shipping waste off site.

Accumulation of Waste

In addition to adopting the DOT regulations outlined above, EPA developed regulations that cover the accumulation of waste prior to transport. A large quantity generator may accumulate hazardous waste on site for 90 days or less as long as the following requirements are met:



- Proper Storage — The waste is properly stored in containers or tanks marked with the words "hazardous waste" and the date on which accumulation began.
- Emergency Plan — A contingency plan and procedures to use in an emergency must be developed. Large quantity generators are required to have a written contingency plan, but small quantity generators are not.
- Personnel Training — Facility personnel are trained in the proper handling of hazardous waste. Large quantity generators are required to have an established training program. Small quantity generators, however, are currently exempt from this requirement, but must ensure that employees handling waste are familiar with proper procedures.

The 90-day period allows a generator to collect enough waste to make transportation more cost-effective; that is, instead of paying to haul several small shipments of waste, the generator can accumulate waste until there is enough for one big shipment.

If the generator accumulates hazardous waste on site for more than 90 days, he or she is considered an operator of a storage facility and must comply with the Subtitle C requirements for such facilities. Under temporary, unforeseen, and uncontrollable circumstances the 90-day period may be extended for up to 30 days by the Regional Administrator on a case-by-case basis.

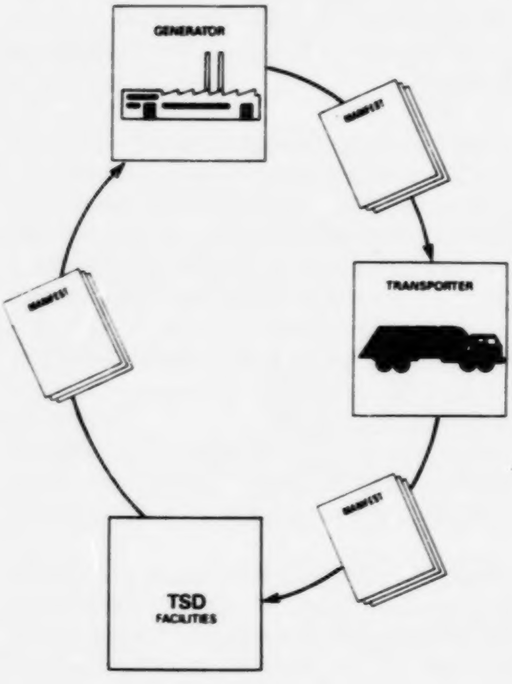
Small quantity generators can store waste on site for up to 180 days, providing certain criteria are met. The on-site quantity of waste cannot exceed 6,000 kilograms at any time. The facility must have basic safety information, e.g., the telephone number of the fire department and a coordinator for emergency activities. The generator must also ensure that personnel are familiar with emergency procedures that must be followed during spills and accidents. For more information on safety requirements, see 40 CFR 262.34(d). Additionally, small quantity generators who must transport waste for 200 miles or more for off-site treatment, storage, or disposal, are allowed to accumulate waste for up to 270 days. The generator must still comply with the basic safety requirements outlined above.

The Manifest

As mentioned earlier, the Subtitle C program is designed to manage hazardous waste from "cradle-to- grave." The Uniform Hazardous Waste Manifest (the manifest) is the key to this objective (see Appendix A). Through the use of a manifest, generators can track the movement of hazardous waste from the point of generation to the point of ultimate treatment, storage, or disposal. RCRA manifests contain the:

- Name and EPA identification number of the generator, the transporter(s), and the facility where the waste is to be treated, stored, or disposed
- DOT description of the waste being transported
- Quantities of the waste being transported
- Address of the treatment, storage, or disposal facility to which the generator is sending waste (called the designated facility).

HSWA requires that each manifest contain a certification that:



- The generator has in place a program to reduce the volume and toxicity of the waste to the degree economically practicable, as determined by the generator
- The treatment, storage or disposal method chosen by the generator is the most practicable method currently available that minimizes the risk to human health and the environment.

The manifest is part of a controlled tracking system. Each time the waste is transferred, e.g., from a transporter to the designated facility or from a transporter to another transporter, the manifest must be signed to acknowledge receipt of the waste. A copy of the manifest is retained by each link in the transportation chain. Once the waste is delivered to the designated facility the owner or operator of that facility must send a copy of the manifest back to the generator. This system ensures that the generator has documentation that his or her hazardous waste has made it to its ultimate destination.

If 35 days pass from the date on which the waste was accepted by the initial transporter and the generator has not received a copy of the manifest from the designated facility, the generator must contact the transporter and/or the designated facility to determine the whereabouts of the waste. If 45 days pass and the manifest still has not been received, the generator must submit an exception report (described below).

Recordkeeping and Reporting

The recordkeeping and reporting requirements for generators provide EPA and the States with a method to track the quantities of waste generated and the movement of hazardous wastes. The generator regulations in 40 CFR Part 262 contain three primary recordkeeping and reporting requirements:

- Biennial reporting
- Exception reporting
- Three year retention of reports, manifests, and test records.

Biennial Reporting

Large quantity generators who transport hazardous waste off-site must submit a biennial report to the Regional Administrator by March 1 of each even-numbered year. The report details the generator's activities during the previous calendar year and includes:

- EPA identification number and name of each transporter used throughout the year
- EPA identification number, name, and address of each off-site treatment, storage, or disposal facility to which waste was sent during the year
- Quantities and nature of the hazardous waste generated
- Efforts made to reduce the volume and toxicity of the wastes generated
- Changes in volume or toxicity actually achieved, compared with those achieved in previous years.

Generators who treat, store, or dispose of their hazardous waste on- site also must submit a biennial report that contains a description of the type and quantity of hazardous waste the facility handled during the year, and the method(s) of treatment, storage, or disposal used.

Exception Reports

In addition to the biennial report, generators who transport waste off- site must submit an exception report to the Regional Administrator if they do not receive a copy of the manifest signed and dated by the owner or operator of the designated facility within 45 days from the date on which the initial transporter accepted the waste. The exception report must describe efforts made to locate the waste, and the results of those efforts. Small quantity generators who do not receive a copy of the signed manifest from the designated facility within 60 days must explain the exception on a copy of the original manifest and send it to the Regional Administrator.

Three-Year Retention of Reports, Manifests, and Test Records

The generator must keep a copy of each biennial report and any exception reports for a period of at least three years from the date the report was submitted. The generator also is required to keep a copy of all manifests for three years or until he or she receives a copy of the manifest signed and dated from the owner or operator of the designated facility. The manifest from the facility must then be kept for at least three years from the date on which the hazardous waste was accepted by the initial transporter. Finally, the records of the waste analyses and determinations undertaken by the generator must be kept for at least three years from the date the waste was last sent to an on-site or off-site TSDF. The periods of retention mentioned above can be extended automatically during the course of any unresolved enforcement action regarding the regulated activity or as requested by the EPA Administrator.

LAND DISPOSAL RESTRICTIONS

One of the major impacts HSWA has had on the implementation of the RCRA program is the restriction on land disposal for certain hazardous wastes. RCRA Section 3004 restricts the land disposal of specified hazardous wastes beyond certain dates unless these wastes are treated according to treatment standards. These requirements are found in 40 CFR Part 268. The land disposal restrictions are referred to as the "land ban," and the hazardous wastes affected are called "restricted wastes."

Generator Requirements

The land disposal restrictions affect both generators and TSDFs (see Section III, Chapter 4 for details on the land disposal restrictions). Generators are responsible for:

- Determining whether their waste is restricted from land disposal, and
- Ensuring that all manifested shipments of restricted wastes are accompanied by the proper records when sent to a TSDF.

All shipments of restricted wastes off-site must be accompanied by the proper records. The type of record depends on whether or not there is a treatment standard specified for that particular waste. Recordkeeping requirements for restricted wastes with treatment standards differ from those for restricted wastes without standards. These requirements are addressed separately below.

Restricted Wastes with Treatment Standards: If a generator determines that the restricted waste does not meet the designated treatment standard level, a notification must accompany the manifest to the treatment facility and must include:

- EPA hazardous waste number

- Applicable treatment standard
- Manifest number of the waste shipment
- Waste analysis data, if available.

If the generator determines that his or her restricted waste meets the treatment standard level without the need for further treatment, the generator must supply the same notification as well as a certification stating that the waste complies with the treatment standard. The notification and certification must accompany the waste shipment to the hazardous waste disposal facility.

Restricted Wastes Without Treatment Standards: If the generator determines that treatment standards are not developed for the restricted waste, the waste may be land-disposed only if the generator prepares a demonstration and certification to accompany the manifest. The demonstration and certification attests that land disposal is the only viable alternative to manage the waste. Appendix B outlines the paperwork requirements for all land disposal restricted wastes.

ADDITIONAL GENERATOR REQUIREMENTS AND EXCLUSIONS

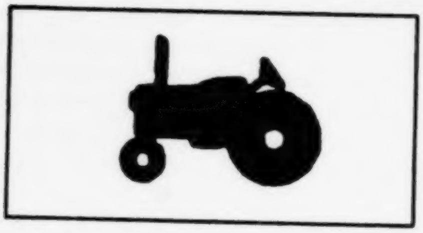
Additional generator requirements apply to persons who export their wastes. In addition, farmers have been excluded from complying with generator requirements under certain circumstances. These requirements are discussed below.

International Shipments

Prior to HSWA, hazardous wastes could be exported from the United States with only minimal notice to EPA or the receiving country. HSWA set additional notification requirements for such exports. These requirements prohibit the export of hazardous waste unless the exporter obtains prior written consent of the receiving country. This statement must be attached to the manifest accompanying each waste shipment.

To export a hazardous waste, the EPA Administrator must first be notified by the exporter 60 days prior to when the waste is scheduled to leave the United States. This notification must be completed only for the first shipment in any 12-month period, unless basic information about the nature and frequency of the shipments changes. If the importing country agrees to accept the hazardous waste, EPA sends an "Acknowledgement of Consent" to the exporter, who may then export the waste to the importing country. Recordkeeping and reporting requirements are similar to those for domestic shipments of hazardous waste.

Farmer Exclusion



Although farmers can be generators of hazardous waste, they need not comply with the Subtitle C regulations for generators when the wastes being disposed are pesticides used only by them, and the:

- Empty pesticide containers are triple rinsed, and
- Pesticide residues are disposed on the farm following the instructions on the pesticide label.

SUMMARY

Hazardous waste generators regulated under RCRA fall into three categories:

- Large quantity generators
- Small quantity generators
- Conditionally exempt small quantity generators.

Regulations under Subtitle C for large and small quantity generators include:

- Obtaining an EPA ID number
- Preparing hazardous waste for transportation
- Following accumulation and storage requirements
- Manifesting hazardous waste
- Recordkeeping and reporting.

HSWA requires generators to evaluate their waste to determine whether it must be treated prior to land disposal. HSWA requires EPA to establish waste-specific treatment standards in accordance with specified schedules. Depending on whether a treatment standard has been established, recordkeeping requirements for generators differ.

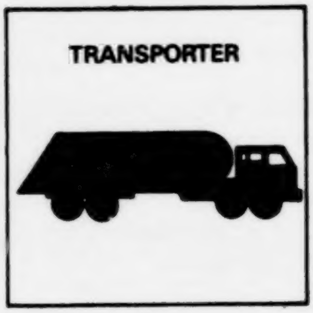
CHAPTER 3

REGULATIONS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

- **OVERVIEW**
- **WHO ARE THE REGULATED TRANSPORTERS?**
- **REGULATORY REQUIREMENTS FOR TRANSPORTERS**
  - EPA ID Number
  - The Manifest
  - Handling Hazardous Waste Discharges
- **STATE TRANSPORTATION REGULATIONS**
- **SUMMARY**

CHAPTER 3 REGULATIONS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

OVERVIEW



Transporters of hazardous waste are the critical link between the generator and the ultimate off-site hazardous waste treatment, storage, or disposal facility. The transporter regulations were developed jointly by EPA and the Department of Transportation (DOT) to avoid contradictory requirements between the two agencies. Although the regulations are integrated, they are not contained in the same part of the Code of Federal Regulations (CFR). A transporter must comply with the regulations under 49 CFR Parts 171-179 (The Hazardous Materials Transportation Act) as well as those under 40 CFR Part 263 (Subtitle C of RCRA). The remainder of this chapter summarizes the Subtitle C regulations applicable to transporters. Those readers interested in obtaining a more complete picture of transporter regulations should also review the DOT regulations.

WHO ARE THE REGULATED TRANSPORTERS?

A transporter under Subtitle C is defined as any person engaged in the off-site transportation of hazardous waste within the United States, if such transportation requires a manifest under 40 CFR Part 262 (for more information see Section III, Chapter 2). This definition covers transport by air, rail, highway, or water. The transporter regulations do not apply either to the on-site transportation of hazardous waste by generators who have their own TSDFs or to TSDFs transporting wastes within a facility.

A Transporter is Defined as:

Any person engaged in the off-site transportation of manifested hazardous waste, by air, rail, highway, or water.

Under certain circumstances, a transporter of hazardous waste may be subject to RCRA regulatory requirements other than those contained in 40 CFR Part 263. Once a transporter accepts hazardous waste from a generator or another transporter, he or she can store it at a transfer station for up to ten days without being subject to other than the transporter regulations. However, if the storage time exceeds ten days, the transporter is considered a storage facility and must comply with the regulations for such a facility (for more information see Section III, Chapter 4). In addition, transporters who bring hazardous waste into the United States or mix hazardous wastes of different DOT shipping descriptions in the same container are classified as generators, and must comply with the regulations applicable to generators outlined in Section III, Chapter 2.

REGULATORY REQUIREMENTS FOR TRANSPORTERS

A transporter is subject to a number of regulations:

- Obtaining an EPA ID number
- Complying with the manifest system
- Handling hazardous waste discharges.

EPA ID Number

One way that EPA keeps track of transporters is by requiring each transportation company to obtain a unique ID number from EPA. Without this identification, the transporter is forbidden from handling any hazardous waste. Furthermore, a transporter may not accept waste from a generator unless that generator has an EPA ID number.

The Manifest

The major responsibilities of the transporter in the manifest system were discussed in Section III, Chapter 2. In summary, the transporter is required to deliver an entire quantity of waste accepted from either the generator or another transporter, to the designated facility listed on the manifest. If the waste cannot be delivered as the manifest directs, the transporter must inform the generator and receive further instructions, i.e., return the waste or take it to another facility. Before handing the waste over to a TSDF, the transporter must have the owner or operator sign and date the manifest. One copy of the manifest remains at the TSDF while the other stays with the transporter. The transporter must retain a copy of the manifest for three years from the date the hazardous waste is accepted by the initial transporter.

As noted in Section I, one of the goals of RCRA is to foster resource recovery and recycling. There is a special exemption from all the normal manifest requirements for transporters who handle certain reclaimed wastes from small quantity generators. The waste must be reclaimed under a contractual agreement that specifies the type of waste and frequency of shipments. The vehicle used to transport the waste from the recycling facility also must be owned and operated by the reclaimer of the waste. The generator is responsible for keeping a copy of the reclamation agreement for three years after the agreement ends.

Handling Hazardous Waste Discharges

Even if generators and transporters of hazardous waste comply with all appropriate regulations, transporting hazardous waste can still be dangerous. There is always the possibility that an accident will occur. To respond to this possibility, the regulations require transporters to take immediate action to protect health and the environment if a release occurs, (e.g., notifying local authorities and/or diking the discharge area).

The regulations also give certain officials special authority to handle transportation accidents. Specifically, if a Federal, State, or local official, with appropriate authority, determines that the immediate removal of the waste is necessary to protect human health or the environment, the official can authorize waste removal without the use of a manifest by a transporter who lacks an EPA ID.

When a serious accident or spill occurs, the transporter must notify the National Response Center (NRC) at 1-800-424-8802. Specifically, the NRC must be notified when:

- A person is killed or seriously injured
- Estimated damage exceeds $50,000
- The spill involves disease-causing agents or radioactive material
- The spill exceeds a Superfund reportable quantity
- A life-threatening situation exists.

The Center for Disease Control must also be informed if the spill involves disease-causing agents. Within 15 days of the incident, the transporter must file a report with DOT. If hazardous wastes were involved in the spill, the transporter must supply a copy of the hazardous waste manifest and an estimate of the quantity of waste removed from the site, where it was taken, and the disposition of any unremoved waste. Consumer commodities, batteries, and small containers of paint are exempt from the 15-day notification requirement.

STATE TRANSPORTATION REGULATIONS

In addition to meeting Federal requirements, transporters must also comply with the requirements of each State they travel through. Indeed, the most substantive requirements in the day-to-day business of transporting hazardous waste come from more than 30 States with transportation regulations that differ from the Federal program. Some State programs are significantly more stringent than the Federal program. A number of States require transporters to post bonds in case of an accident. These differences make it important that transporters consult the transportation regulations of each State they travel through in addition to Federal requirements.

SUMMARY

A transporter of hazardous waste must comply with both DOT and EPA regulations. The Subtitle C regulations require a transporter to:

- Obtain an EPA ID number
- Comply with the manifest system
- Handle hazardous waste discharges.

Under certain circumstances, a transporter of hazardous waste also may be subject to Subtitle C generator and/or storage facility requirements.

Varying State hazardous waste transportation programs often add additional requirements beyond the Federal program. Transporters should consult the regulations of States they travel through to fully understand hazardous waste transport requirements.

CHAPTER 4

REGULATIONS APPLICABLE TO TREATMENT, STORAGE AND DISPOSAL FACILITIES

- **OVERVIEW**
- **WHAT IS A TSDF?**
- **REGULATORY REQUIREMENTS**
- **ADMINISTRATIVE AND NONTECHNICAL REQUIREMENTS FOR INTERIM STATUS AND PERMITTED TSDFs**
  - Subpart A - Who is Subject to the Regulations?
  - Subpart B - General Facility Standards
  - Subparts C & D - Preparedness and Prevention, Contingency Plan and Emergency Procedures
  - Subpart E - Manifest System, Recordkeeping and Reporting
- **INTERIM STATUS (PART 265) TECHNICAL REQUIREMENTS**

  INTERIM STATUS GENERAL STANDARDS

  - Subpart F - Ground-Water Monitoring
  - Subpart G - Closure/Post Closure
  - Subpart H - Financial Requirements

  INTERIM STATUS SPECIFIC STANDARDS

  - General Operating Requirements
  - Subpart I - Containers
  - Subpart J - Tanks
  - Subpart K - Surface Impoundments
  - Subpart L - Waste Piles
  - Subpart M - Land Treatment
  - Subpart N - Landfills
  - Subpart O - Incinerators
  - Subpart P - Thermal Treatment
  - Subpart Q - Chemical, Physical, and Biological Treatment
  - Subpart R - Underground Injection
- **PERMIT (40 CFR PART 264) TECHNICAL REQUIREMENTS**

CHAPTER 4 (CONTINUED)

PERMIT GENERAL STANDARDS

- Subpart F - Ground-Water Protection

PERMIT SPECIFIC STANDARDS

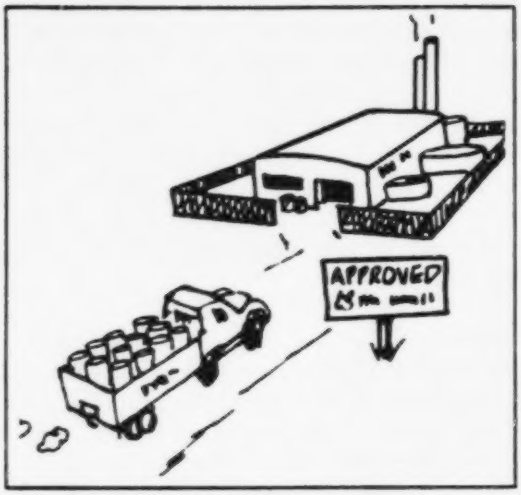
- Subpart I - Containers
- Subpart J - Tanks
- Subpart K - Surface Impoundments
- Subpart L - Waste Piles
- Subpart M - Land Treatment
- Subpart N - Landfills
- Subpart O - Incinerators
- Subpart X - Miscellaneous Units

- **LAND DISPOSAL RESTRICTIONS**
  - Treatment, Storage and Disposal Facility Requirements
- **REQUIREMENTS FOR RECYCLABLE MATERIALS AND RECYCLING PROCEDURES**
- **SUMMARY**

CHAPTER 4

REGULATIONS APPLICABLE TO TREATMENT, STORAGE, AND DISPOSAL FACILITIES

OVERVIEW



Treatment, storage, and disposal facilities (TSDFs) are the last link in the "cradle-to-grave" hazardous waste management system. Subtitle C requires all TSDFs that handle hazardous waste to obtain an operating permit (a process described in the next chapter) and abide by treatment, storage, and disposal (TSD) regulations. The TSD regulations establish design and operating criteria as well as performance standards that owners and operators must meet to protect human health and the environment. Because treatment, storage, and disposal involves many different types of units (e.g., a landfill or an incinerator), these regulations are far more extensive than those just described for generators and transporters. Because of this extensiveness, this chapter provides only a summary of the TSD requirements. To obtain the details, the reader is encouraged to examine 40 CFR Parts 264 and 265.

Due to the impact and importance of the land disposal restrictions on TSDFs, additional detail is included at the end of this chapter. Information on requirements for recycling have also been placed in this chapter.

WHAT IS A TSDF?

The definition of a TSDF, according to 40 CFR 260.10, encompasses three different functions:

- Treatment - Any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize it, or render it nonhazardous or less hazardous, or to recover it, make it safer to transport, store or dispose of, or amenable for recovery, storage or volume reduction.

- Storage - The holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed, or stored elsewhere.

- Disposal - The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste into or on any land or water so that the waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

REGULATORY REQUIREMENTS

The original RCRA legislation establishes two categories of TSDFs based on a facility's permit status. The first category is made up of "interim status" facilities, ones that have not obtained a permit. Although Section 3005(a) of the Act specifies that facilities must obtain a permit to operate, Congress, in developing this requirement, recognized that it would take many years for EPA to issue all permits. Therefore, it established interim status under Section 3005(e) of the Act. This allows owners and operators of facilities in existence on November 19, 1980 (or brought under Subtitle C regulation due to an amendment), who meet certain conditions, to continue operating as if they have a permit until their permit application is issued or denied. The second category is made up of facilities that have permits.

Under Section 3004(a) of the Act, EPA was required to develop regulations for all TSDFs. Although only one set was required, EPA developed two sets of regulations; one for interim status TSDFs, the other for permitted TSDFs. The interim status requirements differ from those for permitted facilities because in the absence of permits, the interim status requirements needed to be self-implementing. The interim status requirements have neither site-specific provisions nor provisions that require negotiations between EPA or a State and the owner or operator.

As will be noted in Chapter 5, incinerators that did not submit a final permit application by November 1986 lost interim status in November 1989. All other facilities lose interim status in November 1992, unless they submitted an application by November 1988. Land disposal facilities that did not apply by November 1985 lost interim status in November 1985.

The interim status standards, found in 40 CFR Part 265, are primarily "good housekeeping practices" that owners and operators must follow to properly manage hazardous wastes during the interim status period. The permit standards, on the other hand, found in 40 CFR Part 264, are a mix of performance standards and "design and operating" criteria that permit writers include in facility-specific permits. Both interim status and permit standards consist of two types of requirements:

- Administrative and nontechnical requirements
- Technical and unit-specific requirements.

CHAPTER 4 REGULATIONS APPLICABLE TO TREATMENT, STORAGE, AND DISPOSAL FACILITIES

Because the administrative and nontechnical requirements are nearly identical for interim status and permit standards, they are discussed together in this chapter. However, the technical requirements applied to interim status and permitted facilities are significantly different and thus are discussed separately. The technical requirements for interim status facilities (40 CFR Part 265) are discussed before those for permitted facilities (40 CFR Part 264) to reflect the chronological order in which these two sets of requirements are applied (existing facilities move from interim to permitted status). Thus, the regulatory requirements portion of this chapter is broken into three parts. The first part describes the administrative and nontechnical requirements that apply to both interim status and permitted facilities. The second part describes the technical requirements that apply to interim status facilities. The third part describes the technical requirements with which permitted facilities must comply. The land disposal restrictions schedule mandated under HSWA for curtailing the land disposal of untreated hazardous waste is discussed at the end of this chapter.

ADMINISTRATIVE AND NONTECHNICAL REQUIREMENTS FOR INTERIM STATUS AND PERMITTED TSDFs

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The purpose of the administrative and nontechnical requirements is to ensure that owners and operators of TSDFs establish the necessary procedures and plans to run a facility properly and to handle any emergencies or accidents. They are in Subparts A through E of 40 CFR Parts 264 and 265, which are applicable to permitted and interim status facilities, respectively, and cover the subject areas shown below:

Subpart	Subject
A	Who is Subject to the Regulations?
B	General Facility Standards • Waste analysis • Security • Inspections • Training • Ignitable, reactive or incompatible wastes • Location standards
C	Preparedness and Prevention
D	Contingency Plans and Emergency Procedures
E	Manifest System, Recordkeeping and Reporting.

Subpart A - Who is Subject to the Regulations?

Subpart A outlines who is subject to the TSD regulations and any circumstances under which a person is excluded or only subject to limited requirements. In general, all owners or operators of facilities treating, storing, or disposing of hazardous waste must meet the appropriate TSD regulations. The exceptions to this include:

- A farmer disposing of pesticides from his own use
- The owner or operator of a totally enclosed treatment facility
- The owner or operator of an elementary neutralization unit or a wastewater treatment unit
- A person cleaning up a hazardous waste spill or discharge
- Facilities that reuse, recycle, or reclaim hazardous waste (except persons who produce, burn, and distribute hazardous waste-derived fuel and used oil recyclers)
- Generators (including small quantity generators) accumulating wastes within the time periods specified in 40 CFR Part 262 (see Chapter 2)
- A transporter storing manifested shipments less than 10 days
- A facility regulated by an authorized State program (such facilities are regulated by the State program instead of the Federal program).

In addition, owners or operators of facilities regulated by other environmental laws under a permit-by-rule (e.g., publicly owned treatment works, underground injection wells), discussed in Chapter 5, only need meet minimum TSD requirements.

Subpart B - General Facility Standards

Before handling any hazardous wastes, every facility owner or operator must apply to EPA for an identification number. Owners and operators also must ensure that their wastes are properly identified and handled, that facilities are secure and operating properly, and that personnel working at facilities are trained in hazardous waste management. To satisfy these conditions, owners and operators must take the following actions.

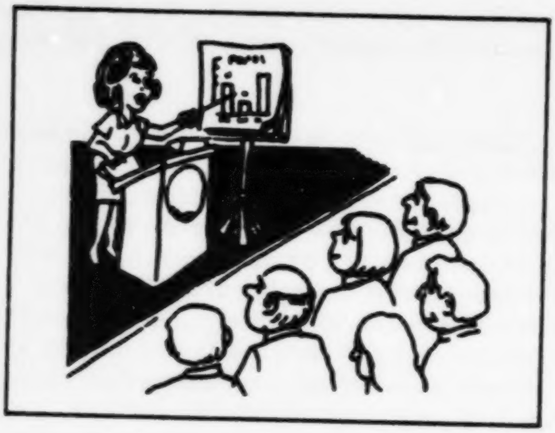
KEEP OUT
DANGER

- Conduct Waste Analyses - Waste analyses are conducted prior to treatment, storage, and disposal. This ensures that owners or operators possess sufficient information on the properties of the waste they manage to be able to treat, store, or dispose of them in a manner that will not pose a threat to human health or the environment. The regulations require owners or operators to perform detailed chemical and physical analyses of their wastes, to develop and follow a written waste analysis plan that specifies tests and test frequencies, and to test any incoming wastes.

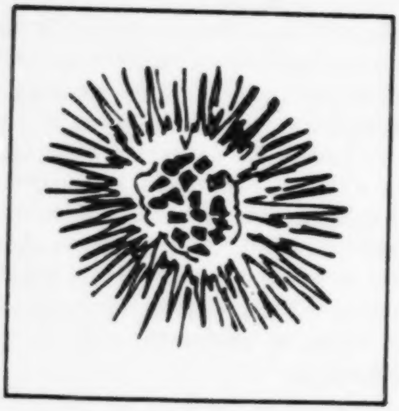
- Install Security Measures - The security requirements were developed to prevent the unknowing entry of people and minimize the potential for the unauthorized entry of people or animals onto the active portions of facilities. To meet these security objectives, a barrier surrounding the active portion of the facility with controlled entry systems or 24-hour surveillance must be installed and warning signs posted. Owners or operators also must take precautions to avoid fires, explosions, generation of toxic gases, and any other events that would threaten human health, safety, and the environment. Owners and operators are exempt from these requirements: (1) if unauthorized or unknowing entry will not result in injury, and (2) if the disturbance of waste or equipment will not result in environmental damage.

- Conduct Inspections - The regulations require an owner or operator to develop and follow a written inspection schedule to assess the status of the facility and detect potential problem areas. Any observations made during the inspections are recorded in the facility's operating log and kept on file for three years. All problems found must be remedied.

- Conduct Training - The purpose of the training requirement is to reduce the potential for mistakes that might threaten human health and the environment. This is accomplished by ensuring that facility personnel acquire expertise in the areas to which they are assigned. The requirements



specify when facility personnel must be trained (e.g., six months after beginning a job), the records to be maintained, and the minimum frequency with which the initial training received by the employees must be updated. Both on-the-job training and in-house training programs may be used to meet the training requirements. Training requirements have also been placed on TSDFs by the Occupational Safety and Health Administration (OSHA). OSHA requires TSDFs to implement a hazard communication plan, medical surveillance program, health and safety plan for employees, decontamination procedures, and to provide a minimum of 24 hours of safety training. The training requirement may be waived if the employee has had equivalent training or work experience.



- Properly Manage Ignitable, Reactive, or Incompatible Wastes - In general, all ignitable or reactive wastes must be protected from sources of ignition or reaction or treated to remove the cause of concern. Owners or operators also must make sure that treatment, storage, or disposal of ignitable, reactive, or incompatible waste does not result in damage to the containment structure (container, tank, surface impoundment, landfill cell, or pit) and/or threaten human health or the environment. Incompatible wastes must not be placed in the same containment structure if there is the potential for reaction.

- Comply With Location Standards - Current location standards prohibit siting a new facility in a location where flood or seismic events could affect a waste management unit. Bulk liquid wastes are also prohibited from placement in salt domes, salt beds, or underground mines or caves. Provisions in HSWA required the Agency to further strengthen these location criteria. EPA is currently working on revising the regulations to reflect these new statutory directives.

Subparts C & D - Preparedness and Prevention, and Contingency Plan and Emergency Procedures

These two subparts, originally grouped as one, were developed to prepare for emergencies. The preparedness and prevention requirements are explicit (e.g., installing fire protection equipment and alarms and arranging for coordination with the local authorities in emergency situations). They are intended to minimize the possibility and effects of a release, fire, or explosion. Contingency plan requirements are the logical next step. They require an owner or operator to develop an action plan for emergency situations. One of the key requirements of this plan is the designation of an emergency coordinator who is responsible for directing response measures and reducing the adverse impacts of hazardous waste releases.

Subpart E - Manifest System, Recordkeeping, and Reporting

These requirements specify that the manifest be returned from the facility owner or operator to the generator, thus completing the manifest loop established in the manifest regulations (40 CFR Part 262). When the owner or operator of the TSDF receives the waste, he or she is responsible for ensuring that the waste described on the manifest is the same as the waste on the truck. This ensures that there are no significant discrepancies in the amount (e.g., an extra drum) or type of waste (e.g., acid waste instead of paint sludge) that was sent by the generator. If a significant discrepancy is discovered, the TSDF must reconcile the difference with the generator or transporter. If this is impossible, EPA must be notified about the problem within 15 days of the incident.

In addition to the manifest requirements, Subpart E also includes requirements for recordkeeping and reporting. This includes operating records, biennial reports, unmanifested waste reports, and reports on releases, ground-water monitoring, and closure. Records and reports provide the regulating authority with the information used in assessing compliance with the hazardous waste regulations. They also provide facility owners and operators, and local authorities, with information that may be used in responding to emergencies.

INTERIM STATUS (PART 265) TECHNICAL REQUIREMENTS

The objective of the interim status technical requirements is to minimize the potential for environmental and public health threats resulting from hazardous waste treatment, storage, and disposal at existing facilities waiting to receive an operating permit. The two groups of interim status requirements are:

- General standards applying to several types of facilities
- Specific standards applying to each waste management method.

An owner or operator of an interim status facility can find the applicable technical requirements in Subparts F through R of 40 CFR Part 265.

INTERIM STATUS GENERAL STANDARDS

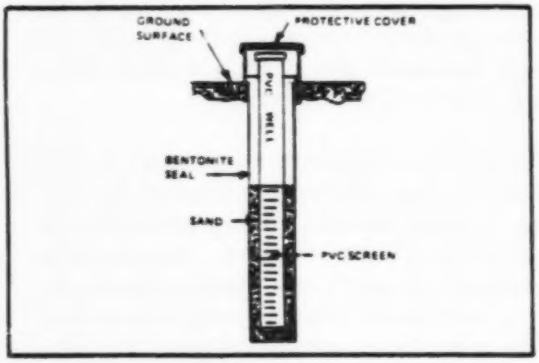
The general standards cover three areas:

1) Ground-water monitoring requirements (Subpart F)
2) Closure, post-closure requirements (Subpart G)
3) Financial assurance (Subpart H).

Subpart F - Ground-Water Monitoring

Ground-water monitoring is required only for owners or operators of surface impoundments, landfills, and land treatment facilities used to manage hazardous waste. The purpose of these requirements is to assess the impact of a facility on the ground water beneath it. All or part of the requirements for ground-water monitoring may be waived if the facility can demonstrate that there is a low potential for migration of contaminants to the uppermost aquifer. For example, a surface impoundment located in highly adsorbent soils may qualify for this exemption. If wastes remain at the site, monitoring must continue for 30 years (or more) after the facility has closed. The interim status ground-water monitoring program consists of:

- Development and installation of a monitoring system
- Background monitoring
- Routine monitoring and evaluation
- Conducting assessments
- Reporting requirements.



Ground-Water Monitoring Well

Development and Installation of a Monitoring System

The ground-water monitoring program outlined in the regulations requires a monitoring system of at least four wells to be installed, one upgradient from the waste management unit and three downgradient. (It is important to note that these are the minimum required.) The downgradient wells must be placed so as to intercept any waste migrating from the unit, should such a release occur. The upgradient wells must provide data on ground water that is not influenced by waste coming from the waste management unit (called background data). If the wells are properly located, comparison of data from upgradient and downgradient wells should indicate if contamination is occurring.

Background Monitoring

Once the wells have been installed, the owner or operator collects quarterly data for one year to establish background concentrations for selected chemicals. These data form the basis for all future comparisons. If the TSDF suspects that contaminants are already migrating to the ground water, this step may be skipped and the facility would comply immediately with the assessment monitoring requirements. There are three sets of indicator parameters for which background concentrations are established:

1) Drinking water parameters

2) Ground-water quality parameters

3) Ground-water contamination parameters.

Routine Monitoring and Evaluation

Following the establishment of background levels, routine monitoring begins. Monitoring examines ground water for elevated levels of ground-water quality parameters annually and ground-water contamination parameters semi-annually. The results of routine monitoring are compared to the background values and tested statistically to determine whether significant increases (or decreases in the case of pH) have occurred in the indicator parameters. If comparisons show a difference, then the Regional Administrator must be notified within 7 days and an assessment program instituted.

Assessment Program

If a statistically significant increase (or decrease in the case of pH) over background is detected for any of the indicator parameters, the owner or operator must implement a ground-water assessment program to determine whether hazardous waste is actually entering ground water. The assessment program, based on a previously developed plan, requires the owner or operator to determine what is contaminating the ground water, the extent of contamination, and the rate of the contaminant migration. Within 15 days of conducting this assessment, a report on ground-water quality must be submitted to the Regional Administrator. If the results of the ground-water assessment show no contamination by hazardous waste, then the owner or operator resumes routine monitoring for the indicator parameters. However, if the assessment shows hazardous waste contamination, then the owner or operator must continue assessing the extent of ground-water contamination quarterly until the facility is closed or further monitoring is required as a result of the permitting process. Corrective action may be required to remedy the release.

Reporting Requirements

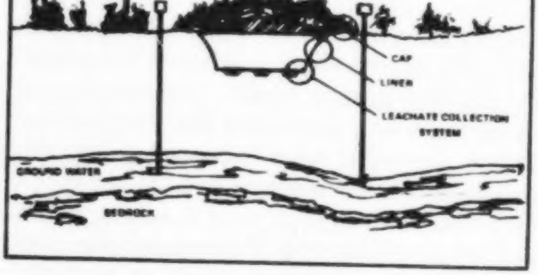
Several ground-water monitoring reports are required. During the first year, when initial background concentrations are being established, a report on each quarterly well analysis must be submitted within 15 days of the analysis. From the second year on, an annual report must be submitted providing the results of monitoring for:

- Indicators of ground-water contamination
- Ground water elevation
- Changes in background levels
- Ground-water contamination assessments.

An owner or operator may also use an alternate ground-water monitoring system if, given the facility's unique hydrogeological situation, the one prescribed in the regulations is not capable of yielding unbiased samples.

Subpart G - Closure/Post-Closure

Closure is the period when wastes are no longer accepted, during which owners or operators of TSDFs complete treatment, storage, and disposal operations, apply final covers to or cap landfills, and dispose of or decontaminate equipment, structures, and soil. Post-closure, which applies only to land-disposal facilities, is normally a 30-year period after closure during which owners or operators of disposal facilities conduct monitoring and maintenance activities to preserve the integrity of the disposal system. EPA may either extend or shorten the time required for post-closure monitoring. The period may be shortened if EPA finds that the reduced period will still protect human health and the environment. Conversely, post-closure may be lengthened if necessary to protect human health and the environment.



The purpose of the closure and post-closure requirements is to ensure that all facilities are closed in a manner that (1) minimizes the need for care after closure and (2) controls, minimizes, or eliminates the escape of waste, leachate, contaminated rainfall, or waste decomposition products to soils, ground or surface waters, and the atmosphere.

Closure

An owner or operator must develop a plan for closing the facility and keep it on file at the facility until closure is completed and certified. This plan must include:

- A description of how the facility will be closed
- An estimate of the maximum amount of waste the facility will handle
- A description of the steps needed to decontaminate equipment and remove soils and debris during closure
- An estimate of the year of closure
- A schedule for closure.

The plan may be amended at any time during the active life of the facility. Furthermore, the plan must be amended whenever design and operation changes that affect the closure plan occur. Prior to closure, the plan is submitted to the Regional Administrator for approval. The Regional Administrator, in turn, must provide both the owner or operator and the public an opportunity to comment on the plan. Following the comment period, the Administrator must make a decision to approve, modify, or disapprove the plan. Closure activities occur according to a timetable outlined in the regulations. This timetable is subject to change by the Regional Administrator.

During closure, the owner or operator must treat, remove from the site, or dispose of on site, all hazardous waste in accordance with the approved closure plan. Once closure is completed, the owner or operator certifies that the facility has been properly closed. As part of closure activities, a survey plat indicating the location and dimensions of landfill cells or other disposal areas is submitted to the local land authority and the Regional Administrator. This plat preserves a record of the TSDF that can be referenced in future years. A notation on the deed to the facility property also must be made to notify potential purchasers of the property that the land was used to manage hazardous waste.

Post-Closure

Post-closure is required for land disposal facilities that do not "clean close" (see below). When a land disposal facility is closed, it must be monitored for 30 years to ensure the integrity of any waste containment systems and to detect contamination. Post-closure care consists of at least the following:

- Ground-water monitoring and reporting
- Maintenance and monitoring of waste containment systems
- Security.

Like the closure requirements, a post-closure plan outlining activities is developed and kept at the facility until post-closure care begins. This plan may be amended at any time, and an amendment is required if there is any change that affects the plan. Post-closure plans are submitted and reviewed in the same manner as closure plans. The post-closure care period may be lengthened or shortened by the Agency if warranted.

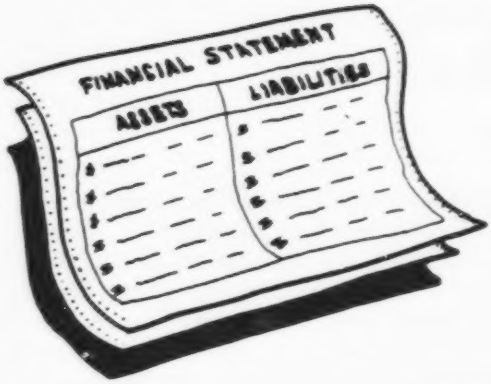
Clean Closure

Owners or operators of surface impoundments and waste piles that remove all contaminants from the unit may "clean close" the unit. This means that all wastes have been removed from the unit. If this is successfully demonstrated, post-closure care is not required.

At a minimum, owners and operators of surface impoundments and waste piles that wish to clean close must conduct soil analyses and ground-water monitoring to confirm that all wastes have been removed from the unit. Individual requirements (i.e., contaminant concentrations) for each facility are set on a case-by-case basis by EPA and the affected State.

Subpart H - Financial Requirements

Financial requirements were established to assure that funds are available to pay for closing a facility, for rendering post-closure care at disposal facilities, and to compensate third parties for bodily injury and property damage caused by sudden and non-sudden accidents related to the facility's operation. One important purpose of financial assurance is to prevent RCRA sites from requiring cleanup under Superfund. Ensuring that funds are available for closure, post-closure, and liability helps minimize the need for future Superfund action.



Under HSWA, Congress mandated financial responsibility for other RCRA activities in addition to those outlined in Subpart H, (e.g., financial responsibility for completing corrective action at TSDFs). Regulations implementing these requirements are currently under development.

Under Subpart H, there are two kinds of financial requirements:

1) Financial assurance for closure/post-closure

2) Liability coverage for injury and property damage (sudden and non-sudden occurrences).

States and the Federal Government are exempted from these requirements.

Financial Assurance for Closure/Post-Closure

The first step owners and operators must take in meeting the financial assurance requirements is to prepare written cost estimates for closing their facilities. If post-closure care is required, a cost estimate for providing this care must be prepared as well. These cost estimates must reflect the actual cost of conducting all the activities outlined in the closure and post-closure plans and are adjusted annually for inflation. The cost estimate for closure is based on the point in the facility's operating life when closure would be the most expensive. Cost estimates for post-closure monitoring and maintenance are based on projected costs for the entire post-closure period.

Following the preparation of the cost estimates, the owner or operator must demonstrate to EPA the ability to pay the estimated amounts. This is known as financial assurance. There are six mechanisms for complying with closure and post-closure financial responsibility. All are adjusted annually for inflation, or more frequently, if cost estimates change. The six mechanisms are:

- Trust fund

- Surety bond
- Letter of credit
- Closure/post-closure insurance
- Corporate guarantee
- Financial test.

Any of the mechanisms can be used in conjunction with each other to meet the financial assurance requirements. However, if a corporate guarantee and the financial test are combined, the owner or operator must certify that his or her financial statements are not consolidated with those of the guarantor. An owner or operator may also use one of the six mechanisms to meet the financial requirements of multiple facilities.

When an owner or operator selects a trust fund for financial assurance, he is placing money into a special account. Annual payments must be made into this account for either 20 years or the remaining operating life of the facility, whichever is shorter. During this "pay-in" period, as it is called, deposits must equal the current cost estimate minus the current value of the trust fund, divided by the number of years remaining in the pay-in period. Thus, the trust fund should contain a sum equal to the cost estimate at the end of the pay-in period.

If either a surety bond, a letter of credit, or closure/post-closure insurance is selected as the assurance mechanism, the owner or operator is purchasing a third-party guarantee that sufficient funds will be available for closure/post-closure activities. The corporate guarantee mechanism works on this same principle. The parent company that owns the facility provides a written guarantee that sufficient funds are available.

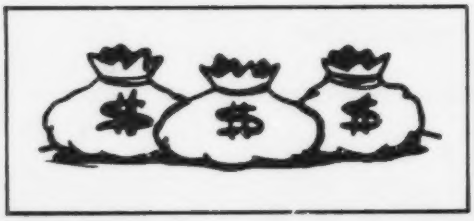
The financial test works on yet a different principle. The owner or operator of a facility can assure, by means of a financial test, that sufficient funds exist within the company to pay for closure/post-closure activities. The financial test is also used to test the financial strength of a parent company's "corporate guarantee."

A facility may use State financial mechanisms to meet the financial assurance requirements, if the Regional Administrator determines that the mechanisms are equivalent to those just discussed. A State mechanism may be used exclusively or in combination with the Federal mechanisms to achieve the full level of assurance that is required.

The financial test and corporate guarantee have been increasingly popular methods for compliance with the RCRA financial assurance requirements. (EPA recently amended the liability requirements to allow the use of the corporate guarantee as a method of compliance). This popularity is due to the flexibility of the methods. Funds do not have to be placed in escrow, nor does a premium have to be paid annually. However, these more lenient requirements make enforcement of financial responsibility difficult if firms file for bankruptcy and fail to pay for closure, post-closure, or liability costs.

Liability Coverage

An owner or operator is financially responsible for bodily injury and property damage to third parties caused by a sudden accidental occurrence or a non-sudden accidental occurrence due to operations at a facility. Sudden occurrences are usually due to an accident, such as an explosion or fire. Non-sudden occurrences take place over a long period of time, (e.g., ground-water contamination).



- Sudden Accidental Occurrences - An owner or operator of a TSDF must have liability coverage of $1 million per occurrence with an annual aggregate of $2 million, exclusive of legal defense costs. This liability coverage may be demonstrated using any of the six mechanisms allowed for assurance of closure and post-closure. In addition, owners or operators may obtain guarantees from corporate "siblings" or "grandparents," or from firms with which they have a "significant business relationship."

- Non-Sudden Accidental Occurrences - Additionally, an owner or operator of a surface impoundment, landfill, land treatment facility, or group of such facilities must maintain liability coverage for non-sudden accidental occurrences. Owners or operators must maintain $3 million per occurrence with an annual aggregate of $6 million, exclusive of legal defense costs. Liability coverage may be demonstrated in the same ways as sudden liability is demonstrated.

The same mechanisms may be used to supply assurance for both types of accidental coverage (sudden and non-sudden), however, coverage must total at least $4 million per occurrence with an $8 million annual aggregate.

INTERIM STATUS SPECIFIC STANDARDS

Subparts I through R of 40 CFR Part 265 consist of requirements tailored to 10 specific waste management methods:

- Containers
- Tanks
- Surface impoundments
- Waste piles
- Land treatment units
- Landfills
- Incinerators
- Other thermal treatment units
- Chemical, physical, and biological treatment units
- Underground injection wells.

While the requirements are specific to the type of waste management practice, there are common elements in each of them. These are:

- Waste analysis
- Monitoring and inspection
- Closure/post-closure
- Recordkeeping

- Requirements for ignitable, reactive, and incompatible wastes
- General operating requirements.

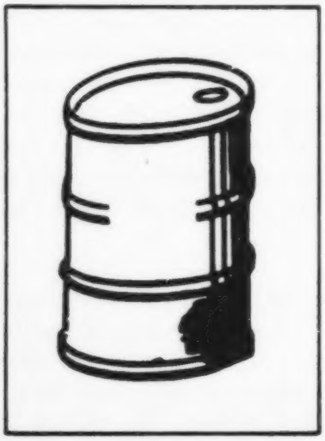
The first five elements have the same objectives as the corresponding general standards discussed earlier, except that additional requirements have been added for each waste management method, (e.g., an owner or operator of a tank in addition to developing an inspection plan, must inspect the tank for cracks or signs of leakage). The method-specific requirements for those five elements are beyond the scope of an orientation manual, but can be found in the regulations (40 CFR Part 265, Subparts I through R).

General Operating Requirements

The general operating requirements specify operating procedures for each waste management method. These operating procedures are the tools used by EPA to ensure that wastes are properly managed. The operating requirements for each of the ten waste management methods are discussed below.

Subpart I - Containers

Drums and containers are frequently used to accumulate and store wastes. In the past, persons using waste drums often put them somewhere out of sight, without any further concern about what might happen to residues in the containers. The drums eventually weathered and corroded, releasing their contents, posing threats to human health and the environment. Recognizing that elementary and straightforward precautions may eliminate these problems, EPA requires basic good management practices. The container regulations, therefore, include:



- Using containers in good condition. Wastes in leaking or damaged containers must be recontainerized.
- Ensuring the compatibility of the waste with the container (i.e., corrosive wastes should not be stored in metal containers).
- Handling containers properly to prevent ruptures and leaks.
- Preventing the mixture of incompatible wastes.

- Conducting inspections to assess container condition.

When closing a container storage area, the owner/operator must ensure that all hazardous waste residues (including contaminated soils) are removed.

Subpart J - Tanks

Tanks are stationary devices designed to contain an accumulation of hazardous waste and constructed primarily of non-earthen materials. Subpart J addresses tanks storing waste that are hazardous under Subtitle C of RCRA. Additional requirements have been developed for underground tanks storing petroleum or hazardous substances under Subtitle I of RCRA. General operating requirements fall into five basic areas:

- Tank Assessment - An assessment must be completed to evaluate the tank system's structural integrity and compatibility with the wastes that it will hold. The assessment covers design standards, corrosion protection, tank tests, waste characteristics, and the age of the tank. Interim status tanks (in most cases) should have been assessed by the owner or operator by January 1988.

- Secondary Containment and Release Detection - Unless the tank does not contain free liquids and is located in a building with impermeable floors, secondary containment and release detection is required. Secondary containment systems must be designed, installed, and operated to prevent the migration of liquid out of the tank system, and to detect and collect any releases that do occur. Commonly used types of containments include liners, vaults, and double-walled tanks.

  Owners and operators of interim status tank systems can demonstrate that an alternate design, location, and operating practice will prevent the migration of hazardous wastes or constituents while the tank system is in use. Alternatively, the tank system can be exempted if any release that might occur would not harm human health and the environment.

- Operating and Maintenance Requirements - Persons using tanks, either to store or treat wastes, must manage the tanks to avoid leaks, ruptures, spills, and corrosion. This includes using freeboard or a containment structure (e.g., dike or trench) to prevent and contain escaping wastes, and having a shut-off or bypass system installed to stop liquid from flowing into a leaking tank.

- Response to Releases - Tanks with leaks or spills must be emptied immediately. The area surrounding the tank must be visually inspected for leaks and spills. Based on the inspection, further migration of the waste must be stopped, and visibly contaminated soils and surface water must be properly disposed. All major leaks must be reported to the Regional Administrator, followed by a report describing the fate of the released materials.

- Closure and Post Closure - All contaminated soils and other hazardous waste residues must be removed from the tank storage area at the time of closure. If decontamination is impossible, the tank storage area must be closed following the requirements for landfills.

Subpart K - Surface Impoundments

A surface impoundment is a depression or diked area (e.g., pond, pit, or lagoon) used for storage, treatment, or disposal, with the following characteristics:

- Open on the surface

- Designed to hold an accumulation of waste in liquid or semi-solid form.

The use of surface impoundments for managing hazardous wastes has given rise to great concern because wastes deposited in them tend to escape. The pressure of the liquids forces the contents to flow downwards into surrounding areas, resulting in contamination, especially of sub-surface waters. The initial requirements established for surface impoundments in interim status were not adequate to prevent contamination. They concentrated on general operating requirements to prevent overtopping (two feet of freeboard was required) and containment of liquids (dikes were required to have protective covers, such as grass or rock to preserve their structural integrity). Though ground-water monitoring was required, liners to prevent leakage were not, because it was deemed impractical and infeasible by EPA for all surface impoundments to be retrofitted for the duration of the interim period before permitting. Congress, however, established minimum technological requirements for interim status surface impoundments in HSWA.

HSWA increased the level of leak protection required at surface impoundments. Existing surface impoundments in interim status had to retrofit and install double liners and a leachate collection system by November 8, 1988, or stop receiving, treating, or storing hazardous waste. Surface impoundments that come under Subtitle C regulation due to additional wastes being listed as hazardous have four years from the date the new wastes are added to meet the new requirements. Surface impoundments must be inspected once a week to determine whether there are any leaks. If a leak is found, the surface impoundment must be taken out of service until it is repaired.

The Act includes provisions for variances from minimum technological requirements, which had to be granted by November of 1987. If any of the exempted impoundments are likely to leak or begin to leak, they must be retrofitted to meet the minimum requirements.

Subpart L - Waste Piles

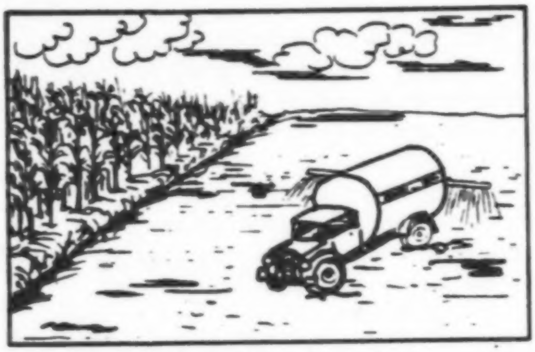
An owner or operator of a waste pile, used for treatment or storage of a non-containerized accumulation of solid, non-flowing hazardous waste, is given a choice regarding management requirements. The owner or operator may comply with either the waste pile or the landfill requirements. Waste piles used for disposal, however, must comply with the requirement for landfills. The requirements for managing storage and treatment waste piles include protecting the pile from wind dispersion. The pile must be placed on an impermeable base that is compatible with the waste being stored. If hazardous leachate or run-off is generated, control systems must be constructed, operated, and maintained.

Subpart M - Land Treatment

Land treatment is the process of using soils and microorganisms as a medium to biologically treat hazardous waste. Land treatment has been successfully used for many years in the petroleum refining industry. However, it is highly regulated because it presents potential risks in the absence of operational controls, (e.g., disposal of non-degradable waste types). These risks arise because land treatment involves the direct application of hazardous waste to soils.

An owner or operator may not place hazardous waste in or on a land treatment facility unless the waste can be made less hazardous or nonhazardous. Monitoring of the soil beneath the treatment area and comparison to data on background concentrations of constituents in untreated soils are required to detect migration of hazardous wastes. In addition, waste analyses must be conducted prior to placing wastes in or on the land to determine:

- If any substance in the waste is EP toxic (see Section III, Chapter 1)
- The concentration of hazardous waste constituents
- The concentration of arsenic, cadmium, lead, and mercury, if food-chain crops are grown on the land.



Land Treatment

If the waste contains any of these compounds in concentrations that will prevent its degradation, immobilization, or transformation, then the waste cannot be treated in a land treatment unit.

The requirements prohibit growing food-chain crops in a treated area containing arsenic, cadmium, lead, mercury, or other hazardous constituents. This prohibition may be waived if it is demonstrated that such elements or constituents would not be transferred to the food portion of the crop or, if transferred, would not occur in concentrations greater than would be expected in an identical crop grown on untreated soil in the same region. If food-chain crops are grown during post-closure they must be raised in accordance with the requirements established in the regulations.

The owner or operator must continue to monitor soil, maintain run-on and run-off management systems, and control wind dispersal after closure. In addition, access to the treatment unit must be restricted.

Subpart N - Landfills

Landfilling historically has been the cheapest, and thus preferred, means of disposing of hazardous waste. Through the 1980s, landfilling is expected to account for disposal of over one-fifth of all hazardous waste. Until the last decade, landfilling practices often focused only on burying the waste to get it out of sight, and controlling surface problems such as blowing litter. Experiences at Love Canal in New York and other burial operations have demonstrated the potential for severe human health and environmental impacts from improper landfilling.

Some argue that, because wastes remain hazardous for very long periods, they should not be landfilled at all. EPA agrees in principle that it is better to destroy or recycle hazardous wastes than to landfill them, but the fact remains that, for the foreseeable future, land disposal is necessary because it is technically infeasible at present to recycle, treat, or destroy all hazardous waste. A number of techniques are available, however, for reducing potential adverse health and environmental effects arising from landfills.

The problems that hazardous waste landfills have presented— and that interim status standards address — can be divided into two broad classes. The first class includes fires, explosions, production of toxic fumes, and similar problems resulting from the improper management of ignitable, reactive, and incompatible wastes. To deal with these problems, owners or operators are required to analyze their wastes to provide enough information for their proper management. They must control the mixing of incompatible wastes in landfill cells. Furthermore, they may landfill ignitable and reactive wastes only when the wastes are rendered unignitable or non-reactive.

The second class of problems presented by landfills concerns the contamination of surface and ground waters. To deal with these problems, interim status regulations require diversion of "run-on" (water flowing over the ground onto active portions of the facility) away from the active face of the landfill; treatment of any liquid wastes or semi-solid wastes so that they do not contain free liquids; proper closure (including a cover) and post-closure care to control erosion and the infiltration of rainfall; and crushing or shredding most landfilled containers so that they cannot later collapse thus leading to subsidence and opening of the cover. In addition, the interim status regulations for landfills require ground-water monitoring to detect contamination, and the collection of rainwater and other run-off from the active face of the landfill to control surface water pollution. Segregation of waste, such as acids, that would mobilize, solubilize, or dissolve other wastes or waste constituents is also required.

Following promulgation of the interim status regulations, Congress determined that existing requirements for land disposal (both interim and permitted), were inadequate to protect human health and the environment and adopted the position of discouraging land disposal. This stance is reflected in HSWA. Specifically, no bulk or non-containerized liquid hazardous waste, or hazardous waste containing free liquids can be disposed of in either an interim status or permitted landfill. This is to prevent the formation of hazardous leachate that could migrate and cause surface or ground-water contamination. An exemption to the ban on disposing of nonhazardous liquid wastes may be obtained if the only reasonably available disposal method for such liquids is a landfill or unlined surface impoundment that may already contain hazardous wastes and that will not present a risk of contamination to underground sources of drinking water. Containers holding free liquids also can be placed in a landfill if the liquid has been solidified or decanted, or the container is very small, (e.g., an ampule). Finally, small containers in overpacked drums containing liquids (e.g., lab packs) may, if properly prepared, be placed in a landfill (with the exception of lab packs containing untreated land disposal restricted wastes). As with surface impoundments, expanded or replaced interim status landfills are required to install double liners and leachate collection systems.

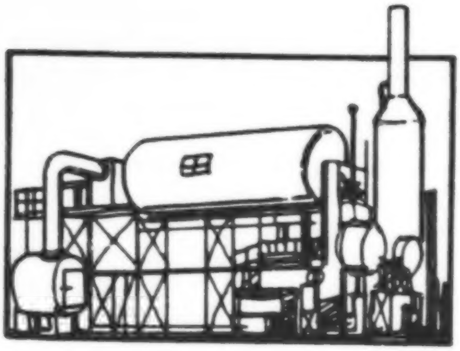
Subpart O - Incinerators

Incineration, a method of thermal destruction of primarily organic hazardous waste using flame combustion, can reduce large volumes of waste materials to ash and less toxic gaseous emissions. The interim status incinerator general operating requirements include:

- Achieving normal steady-state combustion conditions before wastes are introduced
- Combustion and emission monitoring.

The owner or operator must analyze the waste that is to be incinerated. The waste analysis must determine:

- Heating value of the waste
- Total halogen and sulfur content
- Concentrations of lead and mercury, unless the facility



can demonstrate that these elements are not present in the waste stream to be incinerated.

Interim status facilities burning dioxin-containing wastes must meet additional requirements. Essentially, these requirements amount to meeting the permitted (40 CFR Part 264) incinerator standards. This includes destroying 99.9999 percent of the dioxins in the waste stream.

When closing the incinerator, the owner or operator must remove all hazardous waste and waste residues (including but not limited to ash, scrubber waters, and scrubber sludges).

Subpart P - Thermal Treatment

Incineration is only one type of management process that can be used to thermally treat hazardous waste. Less conventional methods, such as molten salt combustion, calcination, wet air oxidation, and fluidized bed combustion, are regulated under this Subpart. Owners or operators who thermally treat hazardous wastes (other than incinerators) must operate the unit following many of the requirements applied to an incinerator. The difference is that the thermal treatment standards prohibit open burning of hazardous waste except for the detonation of waste explosives. Standards for thermal treatment at permitted facilities under 40 CFR Part 264 have been incorporated under Miscellaneous Units, Subpart X.

Subpart Q - Chemical, Physical, and Biological Treatment

Treatment, although most frequently conducted in tanks, surface impoundments, incinerators, and in land treatment facilities, can also be conducted in other ways through processes such as distillation, centrifugation, reverse osmosis, ion exchange, and filtration. Because there are many different types of treatment processes, and because the processes are frequently waste-specific, EPA has not developed detailed regulations for any particular type of process or equipment. Instead, general requirements have been established to assure safe containment of hazardous wastes. In most respects, these other treatment methods are very similar to using tanks for treatment; therefore, they are essentially regulated the same way. The requirements that must be met concern avoiding equipment or process failure (e.g., reagents or wastes that could cause equipment or a process to fail must not be used in treatment). In addition, safety systems to shut down waste inflow in case of a malfunction must be installed in continuous flow operations. Standards for chemical, physical, and biological treatment methods for permitted facilities under Part 264 have been incorporated under Miscellaneous Units, Subpart X.

Subpart R - Underground Injection

Underground injection is the disposal of fluids underground, through a well. Underground injection is regulated jointly under RCRA and the Safe Drinking Water Act. RCRA Section 3004(f) requires EPA to determine whether underground injection of hazardous wastes will endanger human health and the environment. In response to this requirement, EPA has banned the underground injection of wastes that do not meet the applicable treatment standards of the land disposal restrictions. More specific information on the wastes banned from injection can be found in 40 CFR Part 148.

Underground injection wells are permitted at the State level under the Safe Drinking Water Act and granted a permit- by-rule under RCRA. Owners and operators of these facilities must meet the general standards outlined in Subparts A through E of RCRA 40 CFR Part 265. They are not required to meet RCRA closure/post-closure or financial requirements (Subparts G and H of RCRA 40 CFR Part 265), since both areas are already regulated under the Safe Drinking Water Act (see 40 CFR Part 144). HSWA prohibits the disposal of hazardous waste by underground injection into or above a formation within 1/4-mile of an underground source of drinking water.

The standards for underground injection of hazardous waste under the Safe Drinking Water Act consist of:

- Construction Requirements - New wells must be sited so that they inject into a formation free of faults or fractures separate from underground sources of drinking water. Drilling logs and similar tests must be used to ensure that this requirement is met. Both new and existing wells must be cased and cemented to protect sources of drinking water.
- Operating, Monitoring, and Reporting Requirements - The injection pressure of the well must not fracture the disposal formation. The owner or operator must monitor the injection well to ensure the integrity of the well bore.

He or she must also periodically monitor the pressure, flow rate, and cumulative volume of the injected material. Monitoring information is submitted annually to EPA.

PERMIT (40 CFR PART 264) TECHNICAL REQUIREMENTS

The permitted standards are more extensive than the general management practices detailed in the interim status standards, because they compel the owners and operators of the different waste management methods to design their management units to prevent the release of hazardous waste. The permit standards in 40 CFR Part 264 also differ from the interim status standards in that they are only a blueprint for the requirements applied to TSDFs. The specific requirements with which an owner or operator must comply are developed for each facility by permit writers, based on their "best engineering judgment" and the requirements of 40 CFR Part 264. Such requirements are then incorporated into the facility's operating permit. For example, the ground-water monitoring requirements are found in 40 CFR Part 264, but the actual parameters that must be monitored are specified in each permit. Thus, although the technical requirements for permits are discussed here, each facility's permit must be consulted for the individual requirements an owner or operator must follow.

The technical requirements for permitted facilities are structured similarly to the interim status technical requirements. They too are divided into two groups:

- General standards
- Specific standards.

Because many of the interim status technical requirements are the same or similar to permit requirements, the remainder of this chapter describes only these major provisions of Subparts I through O, and X of 40 CFR Part 264 that are not found in, or differ from, Subparts I through R of 40 CFR Part 265.

PERMIT GENERAL STANDARDS

The general standards cover three areas:

1) Ground-water monitoring requirements (Subpart F)
2) Closure/post-closure requirements (Subpart G)

3) Financial requirements (Subpart H)

Subpart F - Ground-Water Protection

The ground-water monitoring requirements are discussed below. Closure/post-closure and financial requirements for permitted facilities are similar to the corresponding requirements under interim status. Thus, they are not repeated here.

Detection Monitoring

The ground-water protection requirements for permitted facilities are more specific than those found under interim status. They apply to surface impoundments, waste piles, land treatment units, and landfills. There are three parts to the ground-water requirements: a detection monitoring program, a compliance monitoring program, and a corrective action program.

Detection monitoring is conducted to determine whether hazardous wastes are leaking from a TSDF at levels great enough to warrant compliance monitoring. Detection activities are similar to those outlined under interim status, including background monitoring and semi-annual monitoring for indicator parameters. Monitoring is conducted at a compliance point specified in the permit. This point is located at the edge of the waste management area, best envisioned as an imaginary plane on the outer limit of one or a group of disposal units. The indicator parameters and constituents that must be monitored are specified in the permit. If leakage is detected, then the owner or operator institutes a compliance monitoring program.

Compliance Monitoring

The objective of the compliance monitoring program is to evaluate the concentration of certain hazardous constituents in ground water to determine whether ground-water contamination is occurring at a level requiring corrective action. Each permit specifies the constituents and concentration limits owners or operators must monitor for in the ground-water protection standard. The constituents are selected from Appendix IX of Part 264 as those that could possibly originate from the TSDF. The ground-water protection standard can be:

- Background levels
- The values in Table 1 of 40 CFR Part 264.94, (Maximum

Concentration of Constituents for Ground-water Protection), or

- A site-specific Alternate Concentration Limit (ACL) approved by the Regional Administrator.

If compliance monitoring indicates a statistically significant increase in the concentration limits for those hazardous constituents specified in the permit, then corrective action must be instituted to bring the facility back into compliance with the ground-water protection standard.

Corrective Action

Corrective action may be required either under the authority of Subpart F or the authority of HSWA. Subpart F corrective action applies only to cleaning up ground water at a regulated unit at a TSDF. This type of corrective action program is incorporated into a facility permit. HSWA corrective action (described in detail in Section III, Chapter 5) applies to releases to any media from any unit at a TSDF. These two corrective action authorities are often used in combination at a TSDF.

PERMIT SPECIFIC STANDARDS

The facility-specific standards cover the following eight waste management methods:

- Containers
- Tanks
- Surface impoundments
- Waste piles
- Land treatment units
- Landfills
- Incinerators
- Miscellaneous units.

Facility-specific permit standards for underground injection, thermal treatment, or chemical, physical, and biological treatment are developed from the general performance standards outlined in Subpart X, Miscellaneous Units, of 40 CFR Part 264.

Subpart I - Containers

Permit requirements for containers are similar to the interim status requirements, with the following exceptions:

- Containers must be placed in a containment system that is capable of containing leaks and spills. This system must have sufficient capacity to contain ten percent of the volume of all containers or the volume of the largest container, whichever is greater (this applies only to those holding liquids; containers holding solids are not factored into this volume determination).

- When closing a container, all hazardous waste and hazardous waste residues must be removed, unless the container is to be disposed of as hazardous waste.

- After closure, all contaminated equipment or soil must be decontaminated or removed.

Subpart J - Tanks

40 CFR Part 264 standards for tanks closely resemble the requirements for interim status tanks described previously. Tank assessments, secondary containment and leak detection, operations and maintenance, response to releases, and closure/post-closure requirements are all the same. The difference is that new tanks (regulated under 40 CFR Part 264) must comply with these requirements before being put into use. Requirements for existing (interim status) tanks are phased in. Additionally, owners and operators of permitted tank systems cannot obtain an exemption from the secondary containment and release detection requirements.

Subpart K - Surface Impoundments

Prior to HSWA, the permit standards for surface impoundments required that a liner be designed, constructed, and installed to prevent migration of wastes out of the impoundment. In addition, double-lined surface impoundments meeting certain requirements were not subject to ground-water protection requirements. However, HSWA established minimum technology standards for land disposal facilities, including surface impoundments, that are more stringent. Existing requirements were considered inadequate to prevent hazardous waste from entering the environment.

All surface impoundments are required to have at least one liner and to be located on an impermeable base. Additionally, new surface impoundments, replacements, or lateral expansions of surface impoundments applying for a permit after November 8, 1984, must meet the minimum technological requirements added to Section 3004(o) of the Act by HSWA. These requirements are:

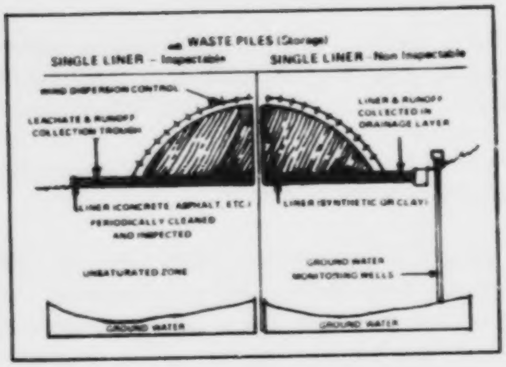
- The installation of two or more liners
- A leachate collection system between the liners
- Ground-water monitoring.

Variances for these requirements may be given by the Administrator if the owner or operator demonstrates that alternative design and operation, together with location characteristics, will prevent migration of hazardous constituents into ground water. Monofill surface impoundments containing foundry wastes and meeting certain conditions also may be issued a waiver. HSWA deleted the variances from ground-water monitoring standards for double-lined impoundments.

In addition to the new HSWA minimum technology requirements, the old requirements calling for proper design, construction, and operation of surface impoundments still apply. These requirements include preventing liquids from escaping from the top (overfilling, run-on) or sides (dikes) of surface impoundments. Liners must be constructed properly, of appropriate materials and thickness. During construction and installation, liners and cover systems must be inspected for uniformity, damage, and imperfections. After installation all units must be examined weekly to ensure that the integrity of the unit is maintained and that no potentially hazardous situations have developed. If the liquid in a surface impoundment suddenly drops for no apparent reason, or if a dike leaks, the surface impoundment must be removed from service and, if the leak cannot be stopped, the impoundment must be emptied.

The closure and post-closure requirements for surface impoundments include removing or decontaminating all waste residues, and properly covering and maintaining the impoundment to prevent leaks from occurring.

Subpart L - Waste Piles

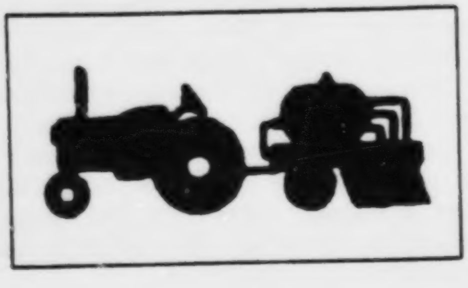

WASTE PILES (Storage)
SINGLE LINER - Inspectable
SINGLE LINER - Non Inspectable
WIND DISPERSION CONTROL
LEACHATE & RUNOFF COLLECTION TROUGH
LINER & RUNOFF COLLECTED IN DRAINAGE LAYER
LINER (CONCRETE, ASPHALT, ETC.) PERIODICALLY CLEANED AND INSPECTED
LINER (SYNTHETIC OR CLAY)
UNSATURATED ZONE
GROUND WATER MONITORING WELLS
GROUND WATER
GROUND WATER

Unlike waste piles regulated under interim status, permitted waste piles must have an impermeable base with a liner designed and constructed to prevent any migration of wastes out of the pile into adjacent soil or waters. A leachate collection system immediately above the liner also must be installed. Owners or operators can be exempted from this requirement if alternate design and operation practices, together with location characteristics, will prevent the migration of hazardous wastes.

Owners or operators of waste piles can obtain a waiver from ground-water protection regulations if the waste pile is "an engineered structure" that the Regional Administrator finds does not receive or contain liquid waste, does exclude liquids, and has a multiple leak detection system that prevents waste migration.

Run-on and run-off systems must be constructed to prevent water from flowing onto the active portion of the waste pile. Construction of liners and cover systems must be monitored to ensure that they are properly installed. During operation, the owner or operator must inspect the waste pile once a week, to ensure that there is no deterioration and that the leachate collection system is functioning properly.

Subpart M - Land Treatment



These standards require that an owner or operator establish a land treatment program to ensure that hazardous constituents placed in or on the treatment zone are degraded, transformed, or immobilized within the treatment zone. The elements of this program specified in the permit, include:

- Which wastes can be treated
- Design and maintenance of the land treatment unit to maximize treatment
- Soil monitoring
- The hazardous constituents that must be degraded, transformed, or immobilized by treatment

- Size of the treatment zone.

The permit specifies the design and operating requirements that the owner and operator must use in the construction and maintenance of the land treatment unit.

Prior to the application of waste, a treatment demonstration must be conducted to verify that the hazardous constituents are adequately treated by the unit. The Regional Administrator may allow the growth of food-chain crops in or on the treatment zone only if the owner or operator meets certain conditions outlined in 40 CFR 264.276.

The permitting standards for land treatment units include extensive unsaturated zone monitoring requirements. A monitoring program must be established to determine whether hazardous constituents are migrating out of the treatment zone. Based on a sampling program outlined in the permit, if migration is detected a permit modification must be submitted outlining changes in operating practices to maximize the success of treatment.

Subpart N - Landfills

Landfills, like surface impoundments, are regulated closely because of the potential impacts they may have on human health and the environment. HSWA added several provisions that owners or operators of landfills must meet. Landfills (including expansions or replacements) permitted after November 1985, must install two or more liners, two leachate collection systems (one above and one between liners) and must conduct ground-water monitoring. The variance from ground-water requirements is the same as that described under surface impoundments and waste piles – only engineered structures that exclude liquids and prevent liquid migration may be exempted. Owners and operators are exempted if they can show that alternative design and operating practices, together with location characteristics, will prevent the migration of hazardous waste. Landfills containing foundry wastes that meet certain location and design criteria are also exempt. Facilities permitted prior to November 1985 must only install one liner and a leachate collection system.

Another HSWA amendment affecting landfills is the "liquids in landfills restriction." Bulk or non-containerized liquids (both hazardous and nonhazardous) are prohibited from placement in a landfill. In addition, the land disposal of containerized liquid hazardous waste or free liquids in containerized hazardous waste must be minimized. If the only reasonable alternative for disposing of nonhazardous liquids is a non Subtitle C landfill or unlined impoundment that contains or may contain hazardous waste, then the Regional Administrator may allow its disposal in a landfill. As with surface impoundments, HSWA requires that final permit applications for landfills be accompanied by information on the potential for public exposure to hazardous wastes or constituents from facility releases. This was previously discussed under 40 CFR Part 264 surface impoundment requirements.

Subpart O - Incinerators

By either conducting a trial burn or using alternate data, an owner or operator must determine the operating methods for his or her incinerator that will result in its meeting the following performance standards:

- 99.99 percent of each principal organic hazardous constituent specified in the permit must be destroyed or removed by the incinerator (dioxins must meet 99.9999 percent)
- Hydrogen chloride emissions must be minimized
- Particulate emissions must be limited.

The permit will specify the composition of waste feed that may be incinerated. Different waste feeds may be incinerated only if a new permit or permit modification is obtained. To prove that an incinerator can meet the required performance standards, a trial burn is usually conducted. Trial burns are a temporary period in which the owner or operator demonstrates the efficiency of the incinerator in destroying hazardous wastes. While incinerating hazardous waste, the combustion process and equipment must be monitored and inspected to avoid potential accidents or incomplete combustion. Incinerators may receive waste only after the destruction removal efficiency has been achieved and the unit is complying with its operating requirements. The Regional Administrator may ask for a sampling of the waste and exhaust emissions to verify that the operating requirements in the permit are being met.

Subpart X - Miscellaneous Units

Until recently, although EPA has issued regulations for all major waste management technologies, some gaps remained. Some technologies were difficult to fit into the framework of the prior regulations. To address these gaps, the Agency issued regulations governing miscellaneous units.

Miscellaneous units are defined as any unit used to treat, store, or dispose of hazardous waste that is not a research, development, and demonstration unit, or not already regulated under 40 CFR Part 264 (e.g., a landfill, surface impoundment, incinerator, or tank). Miscellaneous units regulated under Subpart X include, but are not limited to:

- Open burning/open detonation areas
- Thermal treatment units
- Deactivated missile silos
- Geologic repositories

Requirements for miscellaneous units are based on technical performance standards. They must be designed, constructed, operated, and maintained in a manner that ensures protection of human health and the environment. Requirements for each miscellaneous unit are determined on a case-by-case basis, including any of the technical requirements under 40 CFR Part 264 that may be appropriate.

LAND DISPOSAL RESTRICTIONS

As explained in Section III, Chapter 2, HSWA Section 3004 includes restrictive provisions governing the land disposal of untreated hazardous wastes. These provisions are being codified into regulations following a schedule specified in the statute, which outlines a phase-in of the land disposal restrictions by groups. HSWA requires EPA to develop treatment standards stipulating concentrations or levels of hazardous constituents that are considered to be protective of human health and the environment for all listed and characteristic hazardous wastes by May of 1990 (with a few exceptions).

Treatment standard concentrations are expressed either as: (1)

concentrations of hazardous constituents in leachate produced from testing a sample of the waste using the TCLP (toxicity characteristic leaching procedure - a toxicity test) or (2) concentrations of hazardous constituents present in the waste in weight percent (e.g., 2% lead). In addition to treatment standards expressed as concentrations, for a few wastes these standards are actually specified as a particular treatment technology (e.g., halogenated organic compounds – incineration).

HSWA has divided the universe of listed and characteristic wastes into five groups and set schedules for EPA to develop treatment standards for these groups. The groups and schedules are:

- Solvents and Dioxins: These were banned from land disposal (unless treated) effective November 8, 1986 and November 8, 1988 respectively.

- "California List" Wastes: This group of hazardous wastes was originally developed by the State of California for their hazardous waste management program. It includes: liquid wastes containing certain metals, free cyanides, polychlorinated biphenyls, corrosives (pH less than 2.0) and certain wastes containing halogenated organic compounds. In addition, solid hazardous wastes containing halogenated organic compounds are also included in this group. The majority of these wastes was banned from land disposal (unless treated) effective July 8, 1987. Some wastes were given variances due to a lack of treatment capacity.

- "First, Second, and Third Third" Wastes: The remaining list of listed and characteristic wastes was divided into thirds (see 40 CFR Part 268 for specific waste groupings). The "first third" wastes were banned effective August 8, 1988 and the "second third" June 8, 1989. The "third third" wastes will be banned effective May 8, 1990.

- Newly Listed Wastes: Additional wastes listed after November 8, 1984 will be evaluated on a case-by-case basis. EPA must make a determination of whether the waste may be land-disposed within six months of the identification or listing. However, HSWA does not impose an automatic prohibition on land disposal if EPA misses a deadline for a newly listed waste.

Treatment, Storage, and Disposal Facility Requirements

Specific land disposal restrictions requirements for TSDFs include:

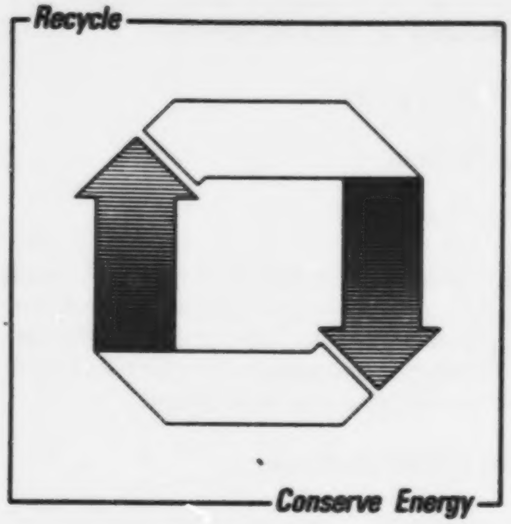
- Ensuring compliance with generator record-keeping requirements when residues generated from treating restricted wastes are manifested off site, and
- Certifying that treatment standards have been achieved for particular wastes prior to disposal.

As outlined in Section III, Chapter 2, facilities that generate land disposal restricted wastes need to ensure that the proper paperwork accompanies the manifest when restricted wastes are sent off-site for disposal. Facilities that store or treat restricted wastes or restricted waste residues, and send the residues off-site for disposal, are subject to the same record-keeping regulations as generators. In addition, facilities that treat restricted wastes to the appropriate standard may send a certification with the manifest to the disposer verifying compliance. However, most disposal facilities generally test waste shipments to ascertain compliance with the treatment standards and to prepare their own certification.

Restricted wastes may be disposed in a hazardous waste landfill only if the waste meets the applicable treatment standard. In some cases, a hazardous waste may meet the treatment standard as generated and require no further treatment. However, more frequently, waste streams will require some type of treatment (e.g., incineration, fixation) prior to disposal to comply with the standards. Facilities that dispose of restricted wastes are ultimately responsible for determining and certifying that they meet the standards. A certification must be prepared by the disposal facility for each distinct waste volume disposed unless the certification is provided by the generator or treatment facility (as discussed above).

REQUIREMENTS FOR RECYCLABLE MATERIALS AND RECYCLING PROCEDURES

As referred to in Section III, Chapter 1, certain materials that are hazardous in nature or exhibit a hazardous waste characteristic are exempt from the scope of hazardous waste regulation when recycled (40 CFR 261.6), including:



- Reclaimed industrial ethyl alcohol
- Used batteries returned to the manufacturer for regeneration
- Used oil recycled but not burned
- Scrap metal
- Fuels from oil-bearing hazardous waste
- Oil reclaimed from hazardous waste
- Coke and coal tar from the iron and steel industry.

Consequently, handlers of these materials are not subject to generator, transporter, or TSDF regulations.

Similarly, regulations contained in 40 CFR Part 266 exempt specialized recycling procedures from portions of the hazardous waste regulations. These procedures include:

- Hazardous waste fuels burned for energy recovery in boilers and industrial furnaces
- Used oil burned for energy recovery in boilers and industrial furnaces
- Hazardous wastes and waste-derived products used in a manner constituting disposal
- Spent lead-acid batteries which are reclaimed, and
- Hazardous wastes from which precious metals are reclaimed

In addition, units used to recycle hazardous wastes (e.g., stills that distill spent solvents) do not require a hazardous waste permit. However, owners or operators of recycling facilities would have to obtain permits for container or tank storage areas used to store the wastes prior to recycling (with the exception of facilities reclaiming lead-acid batteries and those engaged in precious metal recovery).

CHAPTER 4 REGULATIONS APPLICABLE TO TREATMENT, STORAGE, AND DISPOSAL FACILITIES

SUMMARY

Treatment, storage, and disposal facilities (TSDFs) are the last link in the "cradle-to-grave" hazardous waste management system. In order to handle hazardous wastes, TSDFs must obtain a permit and abide by TSD regulations.

TSDFs fall into two categories:

- Interim status facilities
- Permitted facilities.

Interim status was developed by Congress to allow certain owners and operators of facilities in existence on November 19, 1980 (or brought under Subtitle C regulation after this date by amendment), to continue operating as if they have a permit until their permit application is issued or denied.

There are two sets of TSD regulations:

- Interim Status Standards - These are "good housekeeping" requirements, (e.g. tanks should be used properly), found in 40 CFR Part 265.
- Permit Standards - These are facility-specific performance standards and "design and operating" requirements incorporated into the permit, (e.g., tanks storing hazardous waste must be designed to specifications) found in 40 CFR Part 264. The standard permit language, found in the regulations, is general and serves as a guideline for permit writers in setting specific design and operating requirements through "best engineering judgment."

Both TSD regulations are composed of:

- Administrative and Non-Technical Requirements - These ensure that owners or operators of TSDFs establish the necessary procedures and plans to run a facility properly and to handle any emergencies or accidents. They cover:
  - Who is subject to the regulations
  - General facility standards
  - Preparedness and prevention

  - Contingency plans and emergency procedures
  - Manifest system, record-keeping and reporting.

- Technical Requirements - These ensure that owners or operators operate TSDFs in a way that minimizes the potential for threats to human health and the environment. Technical requirements are further broken down into:
  - General standards that apply to several types of facilities, covering:
    - Ground-water monitoring
    - Closure/post-closure
    - Financial requirements.
  - Specific standards that apply to a waste management method, covering:
    - Containers
    - Tanks
    - Surface impoundments
    - Waste piles
    - Land treatment
    - Landfills
    - Incinerators
    - Thermal treatment (interim status standards only)
    - Chemical, physical, and biological treatment (interim status standards only)
    - Underground injection (interim status standards only)

- Miscellaneous units

HSWA Section 3004 requires the Administrator to examine all listed hazardous wastes and some others to determine whether any should be banned from land disposal. Those wastes with concentrations of toxic constituents that threaten human health and the environment must be treated before they can be land disposed.

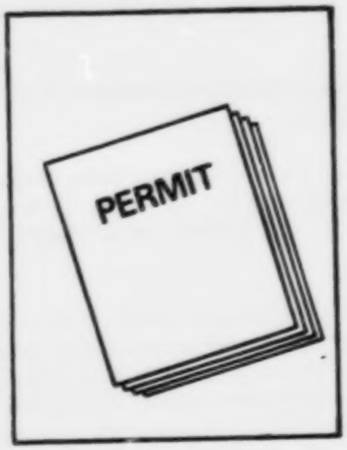
CHAPTER 5

PERMITTING

- OVERVIEW
- WHO NEEDS A PERMIT?
- TYPES OF HAZARDOUS WASTE PERMITS
- THE PERMIT PROCESS
    - Submitting a Permit Application
    - Reviewing the Permit Application
    - Preparing the Draft Permit
    - Taking Public Comment
    - Finalizing the Permit
- PERMIT ADMINISTRATION
    - Permit Modification
    - Revocation and Reissuance of the Permit
    - Permit Termination
- THE CORRECTIVE ACTION PROCESS
    - Scope of Corrective Action
- CORRECTIVE ACTION COMPONENTS
    - RCRA Facility Assessment (RFA)
    - RCRA Facility Investigation (RFI)
    - Corrective Measure Study (CMS)
    - Corrective Measures Implementation (CMI)
- THE ENVIRONMENTAL PRIORITIES INITIATIVE
- SUMMARY

CHAPTER 5 PERMITTING

OVERVIEW



Permits identify the administrative and technical standards to which facilities must adhere. Permits can be issued by EPA or an authorized State. Whether administered by EPA or a State, the permitting program must meet national standards. Indeed, one of the requirements for a State program is that it be fully equivalent to, consistent with, and no less stringent than, the Federal program. Therefore, although this chapter describes permitting as a Federal program, the procedures outlined apply equally to permitting programs run by authorized States. Additionally, States may impose regulatory requirements that are more stringent or broader in scope than the Federal program.

This chapter covers the entire permitting process including:

- The universe of TSDFs subject to the permitting requirements of Subtitle C
- The steps involved in permitting a TSDF
- Corrective action through the permitting process.

WHO NEEDS A PERMIT?

Owners or operators of facilities that treat, store, or dispose of hazardous waste must obtain an operating permit under Subtitle C. TSDFs in existence on November 19, 1980 operate under interim status until a final permit decision is made. New TSDFs are ineligible for interim status and must receive a RCRA permit before construction can commence. Only in a very limited number of circumstances can a person treat, store, or dispose of hazardous waste without a permit:

- Generators storing waste on site for less than 90 days
- Small quantity generators who store waste on site less than 180 days
- Farmers disposing of their own (hazardous) pesticides on site
- Owners or operators of totally enclosed treatment facilities, wastewater treatment units (tanks) and elementary neutralization units
- Transporters storing manifested wastes at a transfer facility for less than 10 days

- Persons engaged in containment activities during an immediate response to an emergency
- Owners or operators of solid waste disposal facilities handling only conditionally exempt small quantity generator waste
- Persons engaged in Superfund on-site cleanups and RCRA Section 7003 cleanups.

If any of the individuals listed above treat, store, or dispose of hazardous waste in a manner not covered by the exclusion, they are subject to the RCRA permit requirements for that activity.

As noted earlier, a permit defines a facility's requirements under Subtitle C. These requirements consist of all the general and technical standards discussed in Section III, Chapter 4, as well as requirements for corrective action. Corrective action requirements specify that TSDFs clean up releases caused by facility operations.

TYPES OF HAZARDOUS WASTE PERMITS

Several categories of permits are issued under the RCRA Subtitle C program. Each category defines operating requirements and various provisions specific to the permitting need.

- Treatment, Storage, and Disposal Permits - Most commonly, RCRA permits are issued for treatment, storage, and disposal units. The units are: containers, tank systems, surface impoundments, waste piles, land treatment units, landfills, incinerators, and miscellaneous units. These methods are the most common way to treat, store, and dispose of hazardous waste. Minimum national standards have been promulgated for each of these methods at 40 CFR Part 264 (see Section III, Chapter 4). HSWA added "corrective action" requirements to the permitting process. These requirements state that facilities must address existing or part releases. Interim status facilities or facilities permitted prior to HSWA must revise their permit to comply with these requirements. All permit conditions must be met prior to issuance of a permit, with the exception of corrective action requirements. Corrective action requirements can be met one of two ways, by:

RCRA PERMIT
T/S/D
Facility

  - writing it as a permit condition, or

  - developing a schedule of compliance.

- Research, Development, and Demonstration Permits - EPA encourages the use of alternative treatment technologies by issuing research, development, and demonstration (RD&D) permits for promising innovative and experimental treatment technologies. The permitting criteria are that national standards must not exist for the treatment technology. For example, a high temperature incinerator could not apply for an RD&D permit since standards have already been promulgated at 40 CFR Part 264 Subpart O. Permits are issued for one year, although they may be renewed up to three times. RD&D facilities can receive only those wastes that are necessary to determine the efficacy of the treatment technology.

  Issuance of RD&D permits follows a more streamlined process than a standard RCRA permit. EPA may modify or waive the usual permit application and issuance requirements, with the exception of financial responsibility and public participation, as long as the Agency maintains consistency with its mandate to protect human health and the environment.

- Post-Closure Permits - Land disposal facilities that leave wastes in place when they close must obtain a post closure permit, specifying the requirements for proper post-closure care.

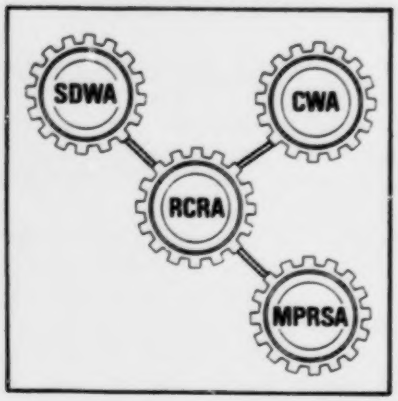
- Emergency Permits - In potentially dangerous situations, EPA can forego the normal permitting process. Specifically, when there is an "imminent and substantial endangerment to human health and the environment," a temporary (90 days or less) emergency permit can be issued to a:

  - Non-permitted facility for the treatment, storage, or disposal of hazardous waste

  - Permitted facility for the treatment, storage, or disposal of hazardous waste not covered by its existing permit.

- Permit-by-Rule - EPA issues permits under a number of different laws. In some instances, the requirements of one statute's permitting regulations are quite similar to those in RCRA. To avoid duplication, EPA has tried to abbreviate

PERMIT-BY-RULE



the application process for facilities that need to be permitted under two or more statutes. This is done through a permit-by-rule. A permit-by-rule eliminates the need for facilities to submit a full Subtitle C permit application when they are permitted under the:

- Safe Drinking Water Act (Underground Injection Control permit)
- Clean Water Act (National Pollutant Discharge Elimination System permit)
- Marine Protection, Research, and Sanctuaries Act (Ocean Dumping permit).

Facilities seeking a RCRA permit that already have one of the three permits listed above need only meet a subset of the Subtitle C regulatory requirements. For example, an owner or operator of a barge or vessel that has an ocean dumping permit, and complies with the appropriate conditions under Subtitle C (e.g., obtaining an EPA ID number, using the manifest system, and biennial reporting) will be considered to have a permit under RCRA.

- Trial Burn and Land Treatment Demonstration Permits - EPA issues permits to construct and operate new hazardous waste management facilities. Such facilities cannot be constructed until a permit is issued. There is, however, an exception to this rule. Land treatment facilities and incinerators must go through a trial period during which their ability to perform properly under operating conditions is tested. This period is called a trial burn for incinerators and a land treatment demonstration for land treatment facilities. Owners or operators of these two types of facilities are required to obtain temporary permits that are enforced while the facility is being tested. Once the facility adequately completes its test, the Agency can make decisions regarding the final permit. This sets the final operating conditions based on the data generated from these demonstrations.

THE PERMIT PROCESS

All hazardous waste TSDFs required to get a RCRA permit go through the same basic permitting process. The exceptions are facilities that are issued a permit-by-rule or an emergency permit. The permit process consists of the following steps:

- Submitting a permit application

- Reviewing the permit application
- Preparing the draft permit
- Taking public comment
- Finalizing the permit

An additional step of appealing the permit decision may occur with some permits.

There are a number of Federal laws that may affect the permit process, including the:

- Wild and Scenic Rivers Act
- National Historic Preservation Act of 1966
- Endangered Species Act
- Coastal Zone Management Act
- Fish and Wildlife Coordination Act.

When any of these laws is applicable, its procedures must be followed. For example, the Coastal Zone Management Act prohibits EPA from issuing a permit for an activity affecting land or water use in the coastal zone unless the proposed activity complies with the State's Coastal Zone Management Program, and is agreed to by the State. To get more information on these laws and their potential impacts on Subtitle C's permitting process, see 40 CFR 270.3.

Submitting a Permit Application

Owners or operators of facilities that fall under the permitting regulations are required to submit a comprehensive permit application covering all aspects of the design, operation, and maintenance of the facility. This gives EPA and the State valuable information to determine if the facility is in compliance with Subtitle C regulations and to develop a facility-specific permit.

The permit application is divided into two parts: A and B. Part A of the application is a short, standard form that collects general information about a facility (e.g., name of the applicant and a description of the activities conducted at the facility). Part B of the permit application is much more extensive than Part A. It requires the owner or operator to supply detailed and highly technical information (e.g., chemical and physical analyses of the hazardous waste to be handled at the facility). Since there is no standard form for Part B, the owner or operator must rely on the regulations (40 CFR Parts 264 and 270) to determine what to include in this part of the application. In addition to the general Part B information that must be submitted by all owners or operators of TSDFs, there are unique information requirements that are tied to the type of facility seeking a permit. Depending on the situation, Parts A and B may be submitted at different times. Existing facilities (i.e., those that received hazardous waste on or after November 19, 1980), submitted their Part A when applying for interim status. Their Part B can then either be voluntarily submitted or "called in" by EPA.

- **Existing Facilities**

Part A + **Part B** = **Permit Application**

- **New Facilities**

Part A & B = **Permit Application**

HSWA imposed a statutory timetable for Part B submittals for interim status facilities, summarized below. Those facilities that fail to meet the submittal deadline lose their interim status and must close if they do not receive permits by the deadline. However, these deadlines do not apply to new facilities or facilities that gained interim status after November 8, 1984.

Type of Facility	Loses/Lost Interim Status on	Unless Part B Submitted by
Land disposal	Nov. 8, 1985	Nov. 8, 1985
Incinerator	Nov. 8, 1989	Nov. 8, 1986
All others	Nov. 8, 1992	Nov. 8, 1988

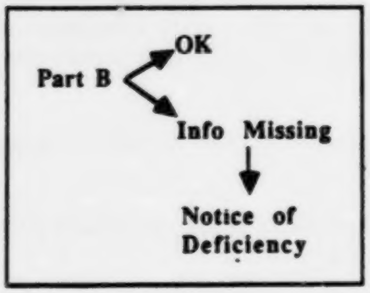
Under HSWA another group of facilities can submit Parts A and B separately. Specifically, any TSDF that comes under the jurisdiction of Subtitle C due to statutory or regulatory changes must submit its Part A six months after the date of publication of the regulations in the Federal Register, or 30 days after the date they first become subject to the promulgated standards. The Part B for such facilities can either be voluntarily submitted or called in by EPA. A special timetable applies to land disposal facilities that come under the jurisdiction of Subtitle C in this manner: they must submit a Part B within 12 months of becoming subject to Subtitle C requirements or lose interim status. Incinerators and all other facilities will retain interim status until a final permit determination is made if they submit their Part B applications by the indicated deadlines.

New facilities submit Parts A and B simultaneously. This submission must be made at least 180 days prior to the date on which physical construction is expected to start. RCRA Section 3019 requires that final permit applications for surface impoundments and landfills be accompanied by information on the potential for public exposure to hazardous wastes or constituents from facility releases. Congress' rationale is that landfills and surface impoundments may pose a greater health risk than other types of disposal facilities. Once the information is submitted, EPA makes it available to the Agency for Toxic Substances and Disease Registry (ATSDR). If EPA believes that the release poses a substantial risk to human health, the Agency requests that ATSDR perform a health assessment. The exposure information must at least address:

- Reasonably foreseeable potential releases from both normal operations and accidents at the facility, including releases associated with transportation to or from the facility,
- The potential pathways of human exposure to hazardous wastes or constituents resulting from the releases described above, and
- The potential magnitude and nature of the human exposure resulting from the releases described above.

Reviewing the Permit Application

Once the owner or operator of a facility has submitted an application (both Parts A and B), EPA's first step is to determine if all the required information has been submitted. If the application is not complete, a notice of deficiency (NOD) letter is sent to the owner or operator describing the additional information that is required for a complete application. Once the owner or operator has submitted all of the required information, the application is considered complete. Failure to provide this information can result in denial of the permit, enforcement action, or both.



In some cases information contained in the permit application may be considered confidential by the owner or operator. Permit applicants often make a claim of confidentiality to protect trade secrets. In such cases, the owner or operator must make the claim known at the time of submission by following the procedures described in 40 CFR 270.12 ("confidentiality of information"). Claims of confidentiality are reviewed (by EPA's legal counsel) to determine if the information can legitimately be claimed as confidential. If a claim is substantiated, the information is treated as confidential and not released. If, on the other hand, a claim is denied, the information is made public. Confidential business information also is discussed in Section VII of this manual.

Once the owner or operator is informed, by letter, that his application is complete, an in-depth evaluation of the permit application begins. The purpose of the evaluation is to determine if the application satisfies the technical requirements of RCRA. After the permit application is evaluated, EPA makes a tentative decision either to issue or deny the permit. If the tentative decision is to deny the permit, EPA must send the owner or operator a notice of intent to deny. If EPA tentatively decides to issue the permit, a draft permit is prepared by EPA staff.

EPA must either approve or deny the applications for facilities that received interim status on or before November 8, 1984 in accordance with the following schedule set out under HSWA:

- Land disposal facilities - by November 8, 1988
- Incinerators - by November 8, 1989
- All other TSDFs - by November 8, 1992.

For new facilities that submit their applications after November 8, 1984, HSWA places no time limits on how long EPA can take to evaluate the application.

Preparing the Draft Permit

The draft permit incorporates applicable technical requirements and other conditions pertaining to the facility's operation. These other conditions are divided into two groups - those applicable to all permits (called general conditions) and those applied on a case-by-case basis. General permit conditions comprise:

- A requirement to comply with all conditions listed in the permit
- A responsibility to notify EPA of any planned alterations or additions to the facility
- A requirement to provide EPA with any relevant information requested and to allow Agency representatives to inspect the facility premises under certain conditions
- A requirement to certify annually that a program is in place to reduce the volume and toxicity of waste, and that the proposed method of treatment, storage, and disposal minimizes threats to human health and the environment

A Draft Permit Consists of:

- **Technical requirements**
- **Other conditions:**
  - **General**
  - **Facility-specific**

- A duty to submit required reports (e.g., Unmanifested Waste Report, Biennial Report, and Manifest Discrepancy Report).

The case-by-case permit conditions include:

- Compliance Schedules - These schedules are used to bring a facility into compliance with corrective action requirements.
- Duration of Permit - The permit is valid for up to ten years; land disposal permits must be reviewed every five years

Taking Public Comment

Once the draft permit (or notice of intent to deny) is completed, EPA is required to give public notice and allow 45 days for written comment. In certain cases a public hearing may also be held during this time. Along with the public notice, EPA must issue either a fact sheet or a statement of basis to inform concerned parties about the permitting process that is taking place. Fact sheets are prepared for every major facility and any facility subject to widespread public interest, as determined by EPA. They include detailed information pertaining to the facility, the contents of the draft permit (or notice of intent to deny), and the procedures to be used in reaching the final administrative decision on the permit application. In lieu of a fact sheet, a statement of basis may accompany a draft permit (or notice of intent to deny). A statement of basis is essentially a summarized version of the fact sheet. These supporting documents are sent to the applicant and, on request, to any other interested person.

If information submitted during the initial comment period appears to raise substantial new questions concerning the permit, the Agency must re-open or extend the comment period. In this situation the Agency may also decide to revise the draft permit (or notice of intent to deny).

Finalizing the Permit

After the comment period closes, a response to all significant public comments is prepared and the Administrator makes the final permit decision, either issuing or denying the permit. This decision may be appealed to the Administrator. When administrative appeals are exhausted, the petitioner may seek judicial review of the final permit decision.

PERMIT ADMINISTRATION

Once issued, RCRA permits are valid for up to ten years. Land disposal permits have an additional requirement of being reviewed after five years. During the term of a permit situations may arise which may cause the permit to be:

- Modified
- Revoked and reissued, or
- Terminated.

Permit Modification

Permits may need modification for a number of reasons, including:

- Substantial alterations or additions to the facility
- New information about the facility becomes available
- New statutory or regulatory requirements affect existing permitted activities.

In September 1988, EPA published regulations (under 40 CFR 270.41 and 270.42) that revised permit modification procedures for changes that facility owners and operators may want to make. EPA categorized selected permit modifications into three classes and established administrative procedures for approving modifications in each class. It is important to note that the previous "major/minor" modification requirements will still be implemented by States that chose not to adopt these provisions.

The permit modification regulations provide owners and operators more flexibility to change permit conditions, expand public notification and participation opportunities, and allow for expedited approval if no public concern exists for a proposed modification.

The classes are defined as:

- Class 1: Routine changes and correction of errors
- Class 2: Common or frequently occurring changes needed to maintain a facility's capability to manage wastes safely or conform to new requirements
- Class 3: Major changes that substantially alter the facility or its operations.

In addition to establishing permit modification classes and administrative procedures, this regulation also gives EPA the authority to grant temporary authorization for facilities to respond promptly to changing conditions.

Revocation and Reissuance of the Permit

EPA may revoke and reissue a permit in two circumstances:

- When cause exists for terminating the permit (under the circumstances described below), but EPA decides that revocation and reissuance is a more appropriate step
- When the permit holder plans to transfer the permit.

Permit Termination

In some instances, operators may not comply with the requirements stipulated in the permit, even after enforcement action. In this case it may be necessary to terminate a hazardous waste permit. EPA may terminate a permit or deny its renewal for three reasons:

- Noncompliance by the permittee with any condition of the permit
- Failure on the part of the permittee to disclose any relevant information during the permit process or misrepresentation of facts at any time
- The permitted activity endangers human health and the environment and can only be regulated to acceptable levels by permit termination.

A facility whose permit is terminated must implement its closure plan as required under 40 CFR Part 264 Subpart G. If wastes remain on site, post-closure monitoring must also be done.

THE CORRECTIVE ACTION PROCESS

In HSWA, Congress expanded EPA's authorities (beyond those contained in 40 CFR Part 264 Subpart F) to address releases of hazardous waste through corrective action. The new authorities allow EPA to address releases to ground water and all other environmental media at all solid waste management units at TSDFs. Corrective action requirements are imposed through a permit or an enforcement order. The TSDF owner or operator is responsible for complying with these requirements. Permits issued to RCRA facilities must, at a minimum, contain schedules of compliance to address releases and include provisions for financial assurance to cover the cost of implementing the corrective measures. EPA has estimated that corrective action at RCRA facilities could encompass about 2,000 TSDFs, take until the year 2025 to complete, and be as large and costly as the current Superfund program.

Scope of Corrective Action

To better understand the scope of the corrective action requirements, one must understand its key terms.

- Solid waste management units (SWMUs – pronounced "SMUUZ") are waste management units from which hazardous wastes or constituents may migrate, even if the unit was not intended for the management of hazardous waste. Additionally, any areas that become contaminated as a result of routine and systematic releases of wastes are SWMUs (e.g., spill areas).

- Regulated units are a subset of all SWMUs. A regulated unit is any surface impoundment, waste pile, land treatment unit, or landfill that received waste after July 26, 1982.

- Hazardous constituents are any substances listed in 40 CFR Part 261, Appendix VIII.

The scope of the corrective action process for regulated units at permitted facilities can vary somewhat from that required at other solid waste management units at permitted or interim status facilities. Releases to ground water from regulated units are addressed under 40 CFR Part 264, Subpart F. Sections 3004(u) and (v) of RCRA (codified in 40 CFR 264.101) require corrective action for releases of hazardous wastes or constituents from any SWMU at a TSDF that is seeking or subject to a RCRA permit. Section 3004 (v) authorizes EPA to impose corrective action requirements for releases that have migrated beyond the facility boundary. Section 3008(h) authorizes EPA to require corrective action or other necessary measures through an enforcement order, whenever there is or has been a release of hazardous waste or constituents from an interim status RCRA facility.

EPA can require permitted facilities with releases from regulated units to:

- Take corrective action only on those releases to the uppermost aquifer (under 40 CFR Part 264 Subpart F), or

- Clean up any other contaminated media (under Sections 3004 (u) and (v)).

The decision is made by EPA on a case-by-case basis, taking into account the nature and magnitude of the release.

CORRECTIVE ACTION COMPONENTS

The corrective action process has four main components. Each component comprises a number of steps. The number of steps required and the complexity of corrective action permit conditions or other enforcement actions may vary depending on the extent and severity of releases of hazardous waste at a TSDF. The decision on which steps to include is made on a facility-by-facility basis. EPA also can require that facilities take interim corrective measures whenever necessary to protect human health and the environment.

RCRA Facility Assessment (RFA)

Release determinations for all environmental media from SWMUs (i.e., soil, ground water, subsurface gas, air, or surface water) will be made by the regulatory agency primarily through the RCRA Facility Assessment (RFA) process. The regulatory agency will perform the RFA for each facility seeking a RCRA permit to determine if there are continuing releases of concern. The major objectives of the RFA are to:

- Identify SWMUs and collect existing information on contaminant releases, and
- Identify releases or suspected releases needing further investigation.

The RFA begins with a preliminary but fairly comprehensive review of pertinent existing information on the facility. If necessary, the review is followed by a visual site inspection to verify information obtained in the preliminary review and to gather information needed to develop a sampling plan. A sampling visit is subsequently performed, if necessary, to obtain appropriate samples for making release determinations.

The findings of the RFA will result in one or more of the following actions:

- No further action under the RCRA corrective action program is required at this time, since no evidence of a release(s) or of a suspected release(s) was identified
- A RCRA Facility Inspection (RFI) by the facility owner or operator is required where the information collected indicates a release(s) or suspected release(s) warrants further investigation
- Interim corrective measures by the owner or operator are required where the regulatory agency believes that expedited action should be taken to protect human health or the environment

- In cases where problems associated with permitted releases are found, the regulatory agency will refer such releases to the appropriate permitting authorities.

RCRA Facility Investigation (RFI)

If the regulatory agency determines that a RFI is necessary, this investigation will be required of the owner or operator either under a permit schedule of compliance or under an enforcement order. The regulatory agency will apply the appropriate regulatory authority and develop specific conditions in permits or enforcement orders. These conditions will generally be based on results of the RFA and will identify specific units or releases needing further investigation. Such permits or orders may be accompanied by a supporting fact sheet. The RFI can range widely from a small specific activity to a complex multimedia study. In any case, through these conditions, the regulatory agency will direct the owner or operator to investigate releases of concern. The investigation may initially involve verification of a suspected release. If confirmed, further characterization of such releases will be necessary.

The RFI step also includes interpretation by the regulatory agency of release characterization data against established health and environmental criteria to determine whether a Corrective Measures Study (CMS) is necessary. This evaluation is crucial to the corrective action process. The regulatory agency will ensure that data and information collected during the RFI adequately describe the release, and can be used to make decisions regarding the need for a CMS with a high degree of confidence.

Identifying and implementing interim corrective measures may also be conducted during the RFI. If, in the process of conducting the investigation, a threat or exposure to hazardous constituents is identified, interim corrective measures may be required. Both the owner or operator and the regulatory agency have a continuing responsibility to identify and respond to emergency situations and to define priority situations that warrant interim corrective measures.

Corrective Measures Study (CMS)

If the potential need for corrective measures is identified during the RFI process, the owner or operator is then responsible for performing a Corrective Measures Study (CMS). During this step of the corrective action process, the owner or operator will identify and recommend as appropriate, specific measures that will correct the release.

Information generated during the RFI will be used not only to determine the potential need for corrective measures, but also to aid in the selection and implementation of these measures. While conducting the RFI, the owner or operator is encouraged to collect data (e.g., engineering data such as soil compaction properties or aquifer pumping tests), which may be needed to select and implement corrective measures.

Corrective Measures Implementation (CMI)

Corrective measures implementation includes designing, constructing operating, maintaining, and monitoring selected corrective measures. If the remedy is not properly implemented, EPA will direct the facility to take additional action on a site-specific basis.

HSWA requires that facilities demonstrate financial assurance for corrective action prior to implementation. This ensures that facilities have the necessary funds available to carry out cleanup of the site. EPA has proposed regulations to require financial assurance for corrective action. Under the proposed rule, acceptable financial mechanisms include trust funds, surety bonds, letters of credit, financial tests, and corporate guarantees. Until finalized, the proposed rule is used as guidance to implement the statutory requirement for financial assurance for corrective action.

THE ENVIRONMENTAL PRIORITIES INITIATIVE

In overseeing the cleanup of hazardous waste sites, EPA is faced with balancing a number of high priority activities. For example, while over 2,000 RCRA facilities are likely to require corrective action, a similar number of sites must be addressed under the Superfund program. To ensure that those sites posing the greatest threat are addressed first, EPA developed the Environmental Priorities Initiative (EPI).

The EPI is an integrated RCRA/Superfund screening approach used to ensure that the most environmentally significant facilities and sites are given priority for cleanup. Under the EPI, all RCRA facilities and Superfund sites receive a ranking of their environmental priority. The ranking, already completed for the majority of sites, is based on the threat each site poses to human health and the environment. The highest priority facilities will receive a site inspection. The inspection, combined with the earlier ranking, will provide a basis for refining priorities. The corrective action cleanup process will be used in lieu of the Superfund remedial process for active RCRA facilities identified as high priority; this will conserve Superfund resources and ensure that owner or operators pay for the site remediation.

CHAPTER 5 PERMITTING

SUMMARY

Permits detail the administrative and technical performance standards that TSDFs must adhere to, and thus are the key to implementing Subtitle C regulations. Owners and operators of existing or new facilities must (with a few exceptions) obtain an operating permit. Each TSDF permit must include provisions for corrective action to address releases from solid waste management units if a release has been detected. Special permit requirements pertain to permit-by-rule facilities, and facilities demonstrating the efficacy of their treatment technology (trial burns and land treatment demonstrations).

The permitting process has five steps:

- Submitting a permit application
- Reviewing the permit application
- Preparing the draft permit
- Taking public comment
- Finalizing the permit.

The final decision on the permit also may be reviewed by the Administrator and appealed to the local U.S. District Court.

Permit administration procedures include permit modification, revocation, reissuance or termination.

HSWA has greatly expanded cleanup requirements at RCRA facilities. Through a process called corrective action, facilities must remedy releases threatening human health and the environment. Corrective action has four main parts:

- RCRA Facility Assessment
- RCRA Facility Investigation
- Corrective Measures Study
- Corrective Measures Implementation.

Although usually done through the permitting process, corrective action may also be completed through an enforcement order.

CHAPTER 6

ENFORCEMENT

- **OVERVIEW**
- **COMPLIANCE MONITORING**
  - Inspections
  - Types of Inspections
  - Conducting the Inspection
- **ENFORCEMENT ACTIONS**
  - Administrative Actions
  - Informal Actions
  - Administrative Orders
  - Civil Actions
  - Criminal Actions
- **ENFORCEMENT AT FEDERAL FACILITIES**
- **AGENCY FUNCTIONS**
- **SUMMARY**

CHAPTER 6 ENFORCEMENT

OVERVIEW

ENFORCEMENT

The effective implementation of RCRA's regulatory programs rests on whether or not the people and companies regulated under the Act comply with its various requirements. The goals of the RCRA enforcement program are to ensure that the regulatory and statutory provisions of RCRA are met, and to compel necessary corrective action. This requires close monitoring of hazardous waste handler (generator, transporter and TSDF) activities and expeditious legal action where non-compliance is detected. Facility inspections by Federal/State officials are the primary tool for monitoring compliance. When non-compliance is detected, legal action may follow. This may include the use of administrative orders, civil lawsuits, or criminal lawsuits depending on the nature and severity of the problem. The combination of effective monitoring and expeditious legal action is intended to reduce the number of handlers not operating in compliance with RCRA's requirements and to deter potential violations by imposing penalties.

This chapter describes the two essential aspects of the enforcement program: compliance monitoring and enforcement actions. All of the enforcement provisions detailed in this chapter are statutory, not regulatory. However, it is important to note that State requirements may be more stringent than those mandated by the Federal government, and State enforcement authorities and procedures may differ from those of EPA.

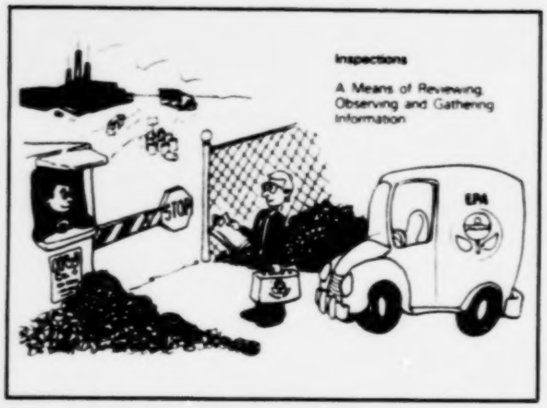
COMPLIANCE MONITORING

The first phase of the enforcement program is monitoring facilities to verify that they comply with RCRA's regulatory requirements. This monitoring serves several purposes. It allows EPA and authorized States to find out which facilities are not in compliance. It also allows EPA and the States to assess the effectiveness of specific legal actions, such as administrative orders, that may have been taken against a handler. Also, the overall compliance monitoring program allows EPA to evaluate the effectiveness of State programs and to monitor nationwide compliance with RCRA. Finally, monitoring acts as a deterrent, encouraging compliance with the regulations by making non-compliers susceptible to enforcement actions.

Inspections

The primary method of collecting compliance monitoring data is through an inspection. The inspection may include a formal visit to the handler, a review of records, taking of samples, or observation of operations. In addition to supplying information for enforcement proceedings, inspections are used to gather data to assist EPA in the development of RCRA regulations, and to help EPA track program progress and accomplishments.

State or EPA officials conduct the inspections. In instances where criminal activity is suspected, EPA's National Enforcement Investigations Center (NEIC) may become involved. Similarly, the Department of Transportation (DOT) may participate where waste transporters are involved. All of these agencies are authorized by RCRA to use outside contractors for the actual inspection if they desire.


Inspections
A Means of Reviewing, Observing and Gathering Information
STOP
EPA

The Act provides the authority for conducting inspections under Section 3007. This section allows EPA, an authorized State, or a representative of either of these to enter any premises where hazardous waste is handled to examine records and take samples of the wastes.

HSWA requires that all Federal or State operated facilities be inspected annually. Furthermore, all TSDFs must be inspected at least once every two years. Facilities also may be inspected at any time if EPA or the State has reason to suspect that a violation has occurred. Finally, facilities are chosen for an inspection when specific information is needed to support the development of RCRA regulations.

Types of Inspections

A number of different types of inspections are conducted under the authority of the RCRA program. Inspections may be conducted by EPA, an authorized State, or both. Typically, either the State or EPA has overall responsibility, or the lead, for conducting the inspection. The different inspection types are explained below.

- Compliance Evaluation Inspection (CEI) - These are routine inspections of hazardous waste generators, transporters, and TSDFs to evaluate compliance with the requirements of RCRA. CEIs encompass a file review prior to the site visit, an on-site examination of generation, treatment, storage or disposal areas, a review of records, and an evaluation of the facility's compliance with the requirements of RCRA.

- Case Development Inspection (CDI) - CDIs are conducted when significant RCRA violations are known, suspected, or revealed. A case development inspection is performed to gather data in support of a specific enforcement action. Most of the activities conducted during a CDI are specific to the type of information required to document the violation (e.g., incinerator investigations, closure/post-closure investigations).

- Comprehensive Ground-Water Monitoring Evaluations (CME) - The CME is conducted to ensure that ground-water monitoring systems are designed and function properly at RCRA land disposal facilities. In addition to the CEI activities, CMEs include sampling and analysis of the facility's ground-water monitoring system and hydrogeological conditions.

- Compliance Sampling Inspection (CSI) - These are inspections in which samples are collected for laboratory analysis. A sampling inspection may be conducted with a CEI, or any inspection except a CDI.

- Operations and Maintenance Inspection (O&M) - Many land disposal facilities close with waste in place. The purpose of O&M inspections is to ensure that ground-water monitoring and other systems continue to function properly after a land disposal facility has closed. O&M inspections are usually conducted at facilities that have already received a thorough evaluation of the ground-water monitoring system under a CME inspection.

- Laboratory Audits - These are inspections of laboratories performing ground-water monitoring analyses. Audits ensure that these laboratories are using proper sample handling and analysis protocols.

Conducting the Inspection

Several steps are generally followed in RCRA inspections to ensure consistency and thoroughness; these steps are summarized below. For more detail on the inspection process, the reader should refer to the RCRA Inspection Manual (OSWER Directive 9938.2A).

The inspector prepares for the inspection by:

- Reviewing handler records
- Preparing an inspection plan
- Developing a checklist, and
- Packing appropriate safety equipment.

The second step is the actual entry onto the handler's property. The inspector identifies himself or herself and describes the nature of the inspection. In some circumstances, a warrant may be needed to gain entry to the facility.

After the inspector has entered the property, he or she generally holds an opening conference with the owner or operator to discuss the nature of the inspection and to describe the information and samples to be gathered. Following the opening conference, the actual inspection takes place. The actual inspection involves:

- Checking hazardous waste generation, storage, treatment or disposal areas
- Assuring that hazardous waste is stored properly (e.g., no spills, leaks or improper disposal), and
- Reviewing records.

Finally, the inspector holds a closing conference with the owner or operator to allow him or her to respond to questions about the inspection and provide additional information. The inspector usually summarizes his or her findings and explains any further action required by the handler.

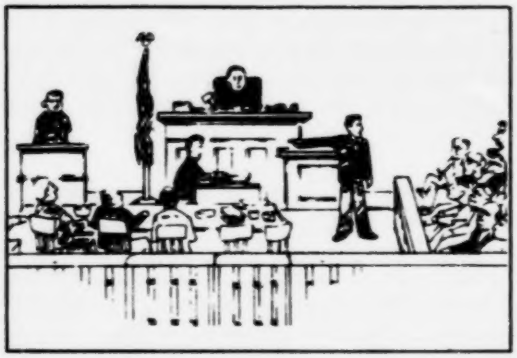
After the visit is completed, the inspector prepares a report. The report summarizes the records reviewed, any sampling results, and the handler's compliance status with respect to RCRA. Summary conclusions regarding inspections are currently tracked in some detail in the Hazardous Waste Data Management System (HWDMS) maintained by EPA.

The most important result of any inspection is the determination of whether the handler is in compliance with the regulations. If the handler is not complying with all of the appropriate State or Federal requirements, enforcement action may be taken, as discussed below.

The inspector may also determine compliance through examination of the reports that handlers are required to submit. Reports may contain information about the wastes being handled, the method of handling, and the ultimate disposition of wastes. Reports are submitted as required in a permit or enforcement order (e.g., corrective action schedules of compliance) and by regulation (e.g., Biennial Report).

ENFORCEMENT ACTIONS

The second phase of the compliance monitoring and enforcement program involves taking enforcement actions to bring handlers into compliance with applicable Subtitle C regulations. The goal of enforcement actions is to compel:



- Proper handling of hazardous waste
- Compliance with RCRA's recordkeeping and reporting requirements
- Monitoring and corrective action in response to releases of hazardous and nonhazardous waste, and hazardous constituents.

EPA (or an authorized State) has a broad range of enforcement options including:

- Administrative actions
- Civil actions
- Criminal actions.

A decision to pursue one of these options is based on the nature and severity of the problem. Violations of RCRA requirements are grouped into classes. These violations and appropriate enforcement responses are discussed in the Enforcement Response Policy, (OSWER Directive Number 9900.0-1A).

Administrative Actions

An administrative action is non-judicial enforcement action taken by EPA or a State under its own authority. Administrative enforcement actions can take several forms ranging from informal notices of non-compliance to issuance of an administrative order accompanied by a formal public hearing. These actions tend to be less complicated than a lawsuit and can often be quite effective in forcing a handler to comply with regulations or to remedy a potential threat to health or the environment. Two types of administrative actions, informal actions and administrative orders, provide for enforcement response outside the court system.

Informal Actions

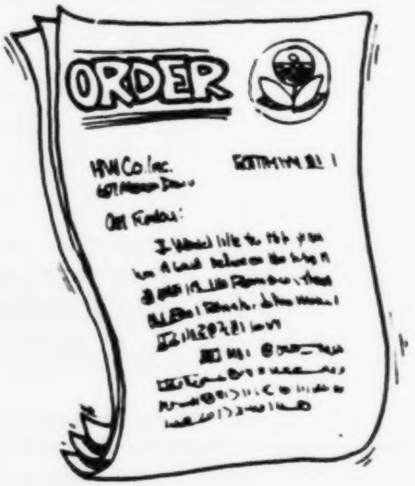
Enforcement Options Available Under RCRA:

- **Administrative actions**
- **Civil actions**
- **Criminal actions.**

An informal administrative action is any communication from an agency that notifies the handler of a problem. It can take many forms, e.g., a letter or a phone call. An informal letter to the handler may be called a "notice of violation" (NOV) or "notice of deficiency" (NOD). For this type of action, EPA or the State notifies a handler that he or she is not in compliance with some provision of the regulations. This type of action is particularly appropriate where the violation is minor, such as a record maintenance requirement. If the owner or operator does not take steps to comply within a certain time period, a warning letter will be sent, setting out specific actions to be taken to move the handler into compliance. The warning letter also sets out the enforcement actions that will follow if the handler fails to take the required steps. A notice of deficiency is commonly issued during the permitting process to identify missing or deficient items in the facility's application for a RCRA permit.

Administrative Orders

When a more severe violation is detected, or the owner or operator does not respond to an informal action, the agency can issue an administrative order. An administrative order, issued directly under the authority of RCRA, imposes enforceable legal duties. Orders can be used to force a facility to comply with specific regulations, to take corrective action, to perform monitoring, testing, and analysis, or to address a threat of harm to human health and the environment. An administrative order can be issued unilaterally by EPA or an authorized State or it can be issued as a consent order, which documents an agreement between the issuer and the violator. Four types of orders can be issued under RCRA:



- Compliance Orders - Section 3008(a) of RCRA allows EPA to issue an order requiring any person who is not complying with a requirement of RCRA to take steps to come into compliance. A compliance order may require immediate compliance or may set out a timetable to be followed in moving toward compliance. The order can contain a penalty of up to $25,000 per day for each day of non-compliance and can suspend or revoke the facility's permit or interim status. When EPA issues a compliance order, the person to whom the order is issued can request a hearing on any factual provisions of the order. If no hearing is requested, the order will become final 30 days after it is issued.

- Corrective Action Orders - Section 3008(h) allows EPA to issue of an order requiring corrective action at an interim status facility when there is evidence of a release of hazardous waste or constituent into the environment. These orders can be issued to require corrective action activities ranging from investigations to repairing liners or pumping to treat a plume of contamination. Corrective action can be required regardless of when waste was placed at the facility. Thus, past problems at RCRA facilities may be cleaned up using this mechanism. In addition to requiring corrective action, these orders can suspend interim status and impose penalties of up to $25,000 for each day of non-compliance with the order.

- Section 3013 Orders - If EPA finds that a substantial hazard to human health and the environment exists, an administrative order can be issued under Section 3013. A 3013 order is used to evaluate the nature and extent of the problem through monitoring, analysis, and testing. These orders can be issued either to the current owner of the facility or to a past owner or operator if the facility is not currently in operation, or if the present owner could not be expected to have actual knowledge of the potential release.

- Section 7003 Orders - In any situation where an "imminent and substantial endangerment to health or the environment" is caused by the handling of nonhazardous or hazardous wastes, EPA can order any person contributing to the problem to take steps to clean it up. This order can be used against any contributing party including past or present generators, transporters, or owners or operators of the site. Violation of a Section 7003 order can result in penalties of up to $5,000 per day.

Civil Actions

In addition to formal and informal actions, EPA can initiate civil actions. A civil action is defined as a formal lawsuit, filed in court, against a person who has either failed to comply with some statutory or regulatory requirement or administrative order or has contributed to a release of hazardous waste or constituents. Civil actions are generally employed in situations that present repeated or significant violations or where there are serious environmental concerns. Attorneys from the Department of Justice (DOJ) handle RCRA civil cases for EPA, while the State Attorneys General assume this role in the States.

Civil Actions Filed Under RCRA:

- **Compliance action**
- **Corrective action**
- **Monitoring and analysis**
- **Imminent hazard.**

Civil actions are useful in several situations, such as when the person being sued has not complied with a previously issued administrative order. In this case, the courts may impose penalties to force the handler to comply. Where a long-term solution to a problem is desired, a civil action may be helpful to ensure proper supervision of the handler's actions. Civil actions may be used to stop conduct that is too dangerous to risk non-compliance with an administrative order, and they also may set a stronger example to other facility operators to deter their non-compliance.

RCRA provides authority for filing four different types of civil actions.

- Compliance Action - Under Section 3008(a), the Federal Government can file suit to force a person to comply with any applicable RCRA regulations. In Federal actions the court can also impose a penalty of up to $25,000 per day per violation for non-compliance.

- Corrective Action - In a situation where there has been a release of hazardous waste from a facility, the Federal Government can sue to have the court order the facility to correct the problem and take any necessary response measures under Section 3008(h). The court can also suspend or revoke a facility's interim status as a part of its order.
- Monitoring and Analysis - If EPA has issued a monitoring and analysis order under Section 3013 of RCRA and the person to whom the order was issued fails to comply, the Federal Government can sue to get a court to require compliance with the order. In this type of case, the court can assess a penalty of up to $5,000 for each day of non-compliance with the order.
- Imminent Hazard - As with a Section 7003 administrative order, when any person contributed or is contributing to an imminent hazard to human health and the environment, the Federal Government can sue the person to require action to remove the hazard or remedy any problem. If the agency had first issued an administrative order, the court can also impose a penalty of up to $5,000 for each day of non-compliance with the order.

Frequently, several of the civil action authorities will be used together in the same lawsuit. This is particularly likely to happen where a handler has been issued an administrative order for violating a regulatory requirement, has ignored that order, and is in continued non-compliance. In this circumstance, a lawsuit can be filed that seeks penalties for violating the original requirement, penalties for violating the order, and a judge's order requiring future compliance with the requirement and the administrative order.

Criminal Actions

A criminal action initiated by the Federal Government or a State can result in the imposition of fines or imprisonment. Seven acts identified in Section 3008 of RCRA are subject to criminal action and carry criminal penalties. The penalties range from a fine of $50,000 per day or a prison sentence of up to five years, to a total fine of $1,000,000. Criminal actions are usually reserved for only the most serious violations.

Six of the seven criminal acts carry a penalty of up to $50,000 per day or from two to five years in jail. Stated briefly, these acts are knowingly:

- Transporting waste to a non-permitted facility
- Treating, storing, or disposing of waste without a permit or in violation of a material condition of a permit or interim status standard
- Omitting important information from, or making a false statement in a label, manifest, report, permit, or compliance document
- Generating, storing, treating, or disposing of waste without complying with RCRA's recordkeeping and reporting requirements
- Transporting waste without a manifest
- Exporting a waste without the consent of the receiving country.

The seventh criminal act is the knowing transportation, treatment, storage, disposal, or export of any hazardous waste in such a way that another person is placed in imminent danger of death or serious bodily injury. This act carries a possible penalty of up to $250,000 or 15 years in prison for an individual or a $1,000,000 fine for a corporation.

ENFORCEMENT AT FEDERAL FACILITIES

In most instances, Federal facilities are required to comply with environmental statutes to the same extent as non-Federal facilities. However, enforcing compliance under RCRA is different at Federal facilities. EPA may only issue Section 3008(h) corrective action orders at Federal facilities; no other orders may be used. States, however, may utilize the full range of their enforcement authorities at Federal facilities.

When a Federal facility is out of compliance with the RCRA regulations, EPA issues a notice of non-compliance, outlining violations at the facility and continuing a compliance schedule, and a timetable for regaining compliance with RCRA. After the notice of non-compliance has been issued, EPA and the Federal facility will negotiate an agreement outlining the steps to bring the facility back into compliance.

In cases where corrective action is required at a Federal facility, EPA may issue either a Section 3008(h) corrective action order or a permit schedule of compliance to achieve compliance with the corrective action requirements. As with non-Federal facilities, the choice of using an order or a permit to secure corrective action at facilities seeking permits is made on a case-by-case basis.

Waste management activities at Federal facilities will often be managed by a private contractor. In this case, EPA has full authority to take enforcement activities against the contractor for violations of RCRA.

AGENCY FUNCTIONS

Responsibility for the various actions that make up the RCRA enforcement program is divided among different Headquarters offices, the EPA Regions, and State agencies. Headquarters is responsible for setting nationwide policy, monitoring Regional and State activities, and providing technical support. The Regions take the primary responsibility for performing inspections, issuing administrative orders, preparing civil actions, monitoring compliance with administrative and judicial orders, and providing support to DOJ for ongoing lawsuits. As with many other aspects of the RCRA program, responsibility for enforcement is largely decentralized. Authorized States take primary responsibility for enforcement. EPA, however, retains its authority to take enforcement actions in authorized States if the State fails to do so, does not obtain acceptable results, or requests EPA assistance.

SUMMARY

There are two essential elements to RCRA's enforcement program - compliance monitoring and enforcement actions. Compliance monitoring is used to determine a handler's level of compliance with RCRA's regulatory requirements. The two primary methods of collecting compliance monitoring data are:

- Inspections by State or EPA officials
- Examinations of the reports that each handler is required to submit.

Inspections must be conducted:

- Annually at all Federal- or State-operated facilities
- At least once every two years at each TSDF.

The six types of inspections conducted under the RCRA program are:

- Compliance Evaluation Inspection (CEI)
- Case Development Inspection (CDI)
- Comprehensive Ground-Water Monitoring Evaluation (CME)

- Compliance Sampling Inspection (CSI)
- Operations and Maintenance Inspection (O & M)
- Laboratory Audit.

Either EPA or an authorized State may lead the inspection.

A primary goal of enforcement actions is to bring facilities into compliance and keep them there. Enforcement actions may be taken when a facility is found to be:

- Out of compliance with applicable Subtitle C regulations
- Releasing nonhazardous or hazardous solid waste, or hazardous constituents.

Enforcement of RCRA is different at Federal facilities. EPA negotiates compliance agreements with Federal facilities. Authorized States, however, may issue administrative orders or take other enforcement actions at Federal Facilities.

The enforcement options available under RCRA are:

- Administrative actions
  - Informal actions
  - Administrative Orders under Section 3008(a), Section 3008(h), Section 3013, and Section 7003
- Civil actions
  - Compliance action
  - Corrective action
  - Monitoring and analysis
  - Imminent hazard
- Criminal actions.

The responsibility for the various enforcement actions is divided among different Headquarters offices, EPA Regions, and authorized State agencies.

CHAPTER 7

STATE AUTHORIZATION

- **OVERVIEW**
- **DEVELOPING A STATE HAZARDOUS WASTE PROGRAM**
  - Program Description
  - Attorney General's Statement
  - Memorandum of Agreement
- **REVIEW OF THE PROPOSED STATE PROGRAM**
- **REVISED APPROVED STATE PROGRAMS**
  - Withdrawing Approval of State Programs
  - Transferring Program Responsibility Back to EPA
- **GRANTS AND OVERSIGHT**
  - Priority Setting
  - State Grants
  - State Oversight
- **INFORMATION MANAGEMENT**
  - HWDMS
  - STARS
  - Biennial Report
- **SUMMARY**

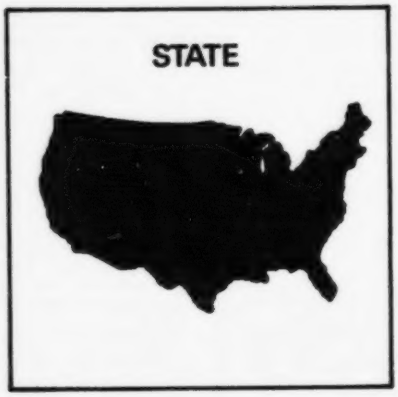
CHAPTER 7 STATE AUTHORIZATION

OVERVIEW

Congress intended that States assume responsibility for implementing RCRA, with oversight from the Federal government. The rationale was that States are more familiar with the regulated community and are in a better position to administer the programs and respond to specific State and local needs most effectively.

The process that States must go through to obtain the responsibility for the Subtitle C program involves developing a State hazardous waste program and having it approved by EPA. This "authorization" process is described below.

DEVELOPING A STATE HAZARDOUS WASTE PROGRAM



Under RCRA, as enacted in 1976, States had two options for assuming the responsibility to administer the Subtitle C program: interim or final authorization. Interim authorization is a temporary mechanism that is intended to promote continued State participation in hazardous waste management while encouraging States to develop programs that are fully equivalent to the Federal program so that they will qualify for final authorization. A State may receive interim authorization if it is "substantially" equivalent to the Federal program. Under RCRA, interim authorization expired on January 31, 1986. HSWA introduced a new interim authorization period for any requirement promulgated pursuant to HSWA authority. HSWA interim authorization expires January 1, 1993.

For a State to receive final authorization it must be "fully" equivalent to, no less stringent than, and consistent with the Federal program. However, States may impose requirements that are "more stringent" or "broader in scope" than the Federal requirements. In addition, the State's program must provide adequate enforcement authority to carry out its provisions, provide for public notice and hearing in the permitting process and provide for public availability of information in "substantially the same manner and to the same degree" as the Federal program.

Any State that seeks final authorization for its hazardous waste program must submit (in accordance with 40 CFR 271.5) an application to the Administrator containing the following elements:

- A letter from the Governor requesting program approval
- Copies of all applicable State statutes and regulations, including those governing State administrative procedures

- Documentation of public participation activities (e.g., notice and opportunity for comment on the State program prior to submittal of the application to EPA)
- A description of the State hazardous waste program
- An Attorney General's statement
- A Memorandum of Agreement.

The first three elements listed above are self-explanatory; only the last three are described below.

Program Description

As the name implies, the program description describes how the State intends to administer the hazardous waste program in place of the Federal program. It includes in narrative form the following descriptions:

- Scope, structure, coverage, and processes of the State program
- State agency or agencies responsible for running the program
- State-level staff who will carry out the program
- State's compliance tracking and enforcement program
- State's manifest system
- Applicable State procedures, including permitting procedures and any State administrative or judicial review procedures
- Any forms used to administer the program under State law.

In addition, the program description must include estimates of:

- Costs involved in running the program and an itemization of the sources and amounts of funding available to support the program's operation
- The number of generators, transporters, and on-site and off-site disposal facilities (along with a brief description of the types of facilities and an indication of the permit status of these facilities)

- The annual quantities of hazardous waste generated within the State, transported into and out of the State, and stored, treated, or disposed of within the State (if available).

If the State chooses to develop a program that is more stringent and/or broader in scope than the one required by Federal law, the program description should address those parts of the program that go above and beyond what is required under Subtitle C. For a more detailed discussion of the program description requirements, see 40 CFR 271.6.

Attorney General's Statement

The Attorney General's statement identifies the legal authorities — statutes, regulations, and where appropriate and necessary, case law — upon which the State is relying to demonstrate equivalence with the Federal program. The statement is also used to explain the State's authorities particularly if, on their face, they are different from the Federal requirements. The statement must be signed by the Attorney General or an authorized designate. State statutes and regulations cited in the Attorney General's statement must be fully effective at the time the program is authorized. For further information on the Attorney General's statement, see 40 CFR 271.7.

Memorandum of Agreement

Although a State with an authorized program assumes primary responsibility for administering Subtitle C, EPA still retains enforcement authority and oversight responsibilities. The Memorandum of Agreement (MOA) between the State Director and the Regional Administrator outlines the nature of these responsibilities and oversight powers, and the level of coordination between the State and the EPA in implementing the program. No two MOAs are exactly alike since they contain State-specific agreements. However, several provisions are required by rule and are common to all MOAs. These include provisions for:

- Specifying the frequency and content of reports that the State must submit to EPA
- Coordinating compliance monitoring and enforcement activities between the State and EPA
- Conducting EPA overview of program administration and enforcement
- Joint processing of permits for those facilities that require a permit from both the State and EPA

- Specifying the types of permit applications that will be sent to the Regional Administrator for review and comment
- Transferring permitting responsibilities upon authorization.

For a complete listing of what must be included in the MOA, see 40 CFR 271.8.

REVIEW OF THE PROPOSED STATE PROGRAM

Before submitting an application to EPA for approval, a State must inform the public of its intent to seek program approval by issuing a public notice. The notice must be widely distributed, with ample opportunity for the public to review the application's contents. A public hearing may be held if sufficient interest is expressed.

For a State Program to Receive EPA Appproval it Must Satisfy the Following Conditions:

- **Equivalency/Stringency**
- **Consistency**
- **Enforceability**
- **Notice and hearing in the permit process.**

Once the State has submitted a complete application to EPA, the Regional Administrator determines whether or not the State's program should be authorized. In making this determination, the Regional Administrator adheres to the following schedule:

- Tentative Determination - Within 90 days from the receipt of the complete application the Regional Administrator must tentatively approve or disapprove the State's application. The tentative determination is published in the Federal Register.
- Public Input - The public is given 30 days to comment on the State's application and the Regional Administrator's tentative determination. If sufficient interest is expressed, a public hearing is held within this time period.
- Final Determination - Within 90 days of the notice of the tentative determination in the Federal Register, the Regional Administrator decides whether or not to approve the State's program, taking into account any comments submitted. This final determination is then published in the Federal Register.

REVISING APPROVED STATE PROGRAMS

As Federal and State statutory or regulatory authority is modified or supplemented, so too must the State program be revised. If the State initiates a statutory or regulatory change that affects its approved hazardous waste program, it submits a copy of the amended statute or rule, a modified program description, revised MOA, Attorney General's statement, and any other pertinent documents to EPA. In reviewing the State's proposed modifications, EPA applies the same standards used in reviewing the State's initial program application. The revisions become effective upon EPA approval and notice in the Federal Register.

States must revise their programs to incorporate changes in the Federal program within certain time frames. For Federal program changes promulgated pursuant to RCRA, States must modify their programs by July 1 each year to reflect all changes to the Federal program occurring during the 12 months preceding the previous July 1. (These annual periods are referred to as "clusters"; for example, States must modify their programs by July 1, 1990 to reflect all changes from July 1, 1988 to June 30, 1989.) The deadlines for program modifications may also be extended if a statutory change is needed (one year) or if a State's legislative or rulemaking procedures preclude it from meeting the cluster timeframes. For Federal program changes promulgated pursuant to HSWA, these "cluster" periods are extended. For a more complete description of the "cluster" concept, refer to 40 CFR 271. 21.

It is important to note that rules promulgated pursuant to RCRA take effect only in non-authorized States. An authorized State must modify its program, submit an application, and obtain approval from EPA before a RCRA rule may be implemented. Conversely, rules promulgated pursuant to HSWA are effective in both authorized and non-authorized States. EPA implements and enforces HSWA rules until States modify their programs, submit applications, and receive approval.

Withdrawing Approval of State Programs

Approved State programs are continually subject to review. If the Administrator determines that a State's authorized program no longer complies with the appropriate regulatory requirements, authorization may be withdrawn if the State fails to take corrective action. Such circumstances include a failure to:

- Issue permits that conform to the regulatory requirements
- Inspect and monitor activities subject to regulation
- Take appropriate enforcement action.
- Comply with the terms of the MOA.

If program approval is withdrawn, responsibility for administering Subtitle C reverts to the Federal government. For a detailed explanation of the withdrawal process, refer to 40 CFR 271. 23.

Transferring Program Responsibility Back to EPA

In some cases (e.g., for financial reasons) States with approved programs may voluntarily transfer the program back to EPA. To do this, the State must give the Administrator 180 days notice and submit a plan for the orderly transfer of all relevant program information necessary for EPA to administer the program, e.g., permits, permit files.

GRANTS AND OVERSIGHT

States are the primary implementers of RCRA and may receive Federal financial assistance under RCRA Section 3011 to develop and implement their hazardous waste programs. Grant awards are made annually to States. States and Regions negotiate the specific work to be accomplished with these grant funds. EPA conducts oversight of State programs to ensure that the program as implemented adequately protects human health and the environment. Priority setting, State grants and State oversight activities are described briefly in the following discussion.

Priority Setting

EPA outlines its goals and priority program activities in the annual Agency Operating Guidance. This document identifies the national direction and priorities for implementing each EPA program, including the RCRA Subtitle C and D programs. The RCRA priorities in the Operating Guidance form the basis for Regional and State workload negotiations for the upcoming year.

Although EPA encourages implementation in accordance with national priorities, the Agency created the "RIP (RCRA Implementation Plan) flexibility" concept to acknowledge that Regions and States may have unique environmental problems. "RIP flex" allows Regions and States to substitute activities necessary to address environmentally significant problems for national priorities. "RIP flex" requires EPA Headquarters' approval.

State Grants

In addition to identifying priority RCRA activities, the Operating Guidance also includes the formula used to determine RCRA grant allotments. Both authorized and nonauthorized States are eligible to participate in the RCRA grant program. States that receive RCRA grant funds must provide a 25% match. Each EPA Regional Office receives an allotment based upon factors contained in the grant allocation formula. This grant formula is based upon, among other things, population and the hazardous waste generated in the Region. States submit proposed work plans that outline planned activities in the upcoming year, including permitting, enforcement, and program management. Regions then negotiate with each State in the spring and summer; the State grant award is made each October.

State Oversight

Ongoing oversight of the entire State hazardous waste program is an important role of the Regional staff, with Headquarters' assistance. The purpose of oversight is to:

- Promote national consistency in RCRA implementation
- Encourage coordination and agreement between EPA and States on technical and management issues
- Ensure proper enforcement by the State
- Ensure appropriate expenditure of Federal grant funds

Regions use several RCRA guidance documents to conduct oversight activities, to ensure compliance with statutory and regulatory requirements, and to implement the EPA/State division of responsibility. For example, the National Criteria for a Quality Hazardous Waste Management Program (OSWER Directive 9545.00-1) contains standards and requirements for planning and overseeing an adequate RCRA program. EPA also uses the RCRA Evaluation Guide to assess State progress and identify areas where States require assistance. EPA guidance stipulates that States should receive an annual mid- and end-of-year review of the RCRA Subtitle C program.

INFORMATION MANAGEMENT

When implementing the RCRA program, EPA and the States are subject to extensive reporting requirements; various reporting requirements apply to the regulated community as well. The objectives of RCRA reporting requirements are to:

- Ensure that the program is adequately managed at the Headquarters, Regional, and State levels, and
- Provide accurate, up-to-date information to Congress and the public.

EPA maintains RCRA program information in its national data base, the Hazardous Waste Data Management System (HWDMS). States are held accountable for performing negotiated work and providing detailed information in a series of reports to indicate progress. The Agency currently tracks accomplishments through HWDMS reports as well as through its accountability system, the Strategic Targeted Activities for Results System (STARS), formerly known as Strategic Planning and Management System (SPMS). Examples of types of information tracked include permits issued/denied and inspection and violation data.

HWDMS The RCRA program uses HWDMS to track RCRA Subtitle C facility-specific data as well as accomplishments. This data base contains a range of information on permitting and compliance monitoring activities for all generators, transporters, and TSDFs. HWDMS is maintained by Regions and States who submit monthly updates to the data base. A new data base, the RCRA Information System (RCRIS), has been developed and is being piloted among the Regions and States. RCRIS will be phased in to eventually replace HWDMS.

STARS The Strategic Targeted Activities for Results System (STARS), formerly known as the Strategic Planning and Management System (SPMS), is an EPA accountability system that facilitates integrated planning, tracking, and reporting of major activities within each of EPA's programs. Each year, EPA establishes measures to track progress of high priority activities. The Operating Guidance and STARS measures are developed concurrently and finalized by March 1 of each year. Once STARS measures are established, Regions and States negotiate appropriate targets for many of these actions. Progress is monitored on a quarterly basis and RCRA STARS data are stored in HWDMS.

Biennial Report As discussed earlier in this section, RCRA Sections 3002 and 3005 establish requirements for generators and TSDFs to submit detailed activity reports. These reports must be submitted to EPA on March 1 of each even-numbered year for the previous year's hazardous waste activity. Many States require that this reporting be done annually. States compile these reports and submit information to EPA Regions by September of the even-numbered year. This data, known as the Biennial Report is entered directly into the Biennial Report Data System (BIRDS) which provides information on the status of the RCRA program.

SUMMARY

Congress intended that States assume responsibility for implementing RCRA, with oversight from the Federal government. Any State that seeks final authorization for its hazardous waste program must submit an application, in accordance with 40 CFR 271.5, to the Administrator containing the following elements:

- A letter from the Governor requesting program approval
- Copies of all applicable State statutes and regulations
- Documentation of public participation activities

- A program description
- An Attorney General's statement
- A Memorandum of Agreement.

Before approving an application, EPA must be satisfied that the State program

- Is equivalent to, no less stringent than, and consistent with the Federal program (State requirements may be more stringent or broader in scope)
- Provides adequate enforcement authority
- Provides for public notice and hearing prior to the issuance of a permit, and
- Provides for public availability of information in substantially the same manner and to the same degree as the Federal program.

Approved State programs are subject to:

- Revision
- Withdrawal of approval
- Transfer of program responsibilities back to EPA.

States are the primary implementers of RCRA and may receive annual grants from EPA under RCRA Section 3011. States negotiate annual work plans with EPA Regions and their progress is monitored primarily by Regional staff, with Headquarters' assistance.

EPA and the States are subject to extensive reporting requirements when implementing RCRA; various reporting requirements apply to the regulated community as well. These requirements include quarterly Strategic Targeted Activities for Results System (STARS) reporting and biennial reports. Most RCRA program data is tracked in the EPA national data base, HWDMS; the new RCRIS data base will be phased in to eventually replace HWDMS.

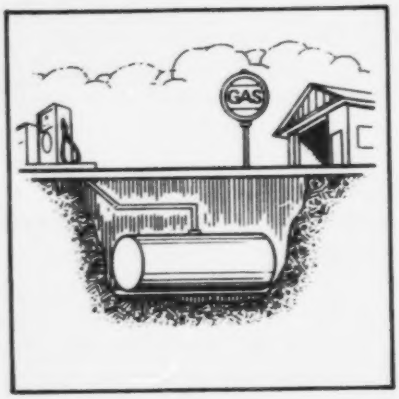
SECTION IV

SUBTITLE I OF RCRA - MANAGING UNDERGROUND STORAGE TANKS

- **OVERVIEW**
- **SCOPE OF THE UNDERGROUND STORAGE TANK PROBLEM**
  - Major Causes of Tank Failure
- **THE UNDERGROUND STORAGE TANK REGULATORY PROGRAM**
  - Program Scope
  - Underground Storage Tank Design, Construction, Installation, and Notification
  - General Operating Requirements
  - Release Detection
  - Release Reporting, Investigation, and Confirmation
  - Corrective Action Requirements
  - Underground Storage Tank Closure
  - Financial Assurance
- **STATE UNDERGROUND STORAGE TANK PROGRAMS**
- **INSPECTIONS AND ENFORCEMENT**
- **LEAKING UNDERGROUND STORAGE TANK TRUST FUND**
- **SUMMARY**

SECTION IV SUBTITLE I OF RCRA - MANAGING UNDERGROUND STORAGE TANKS

OVERVIEW



Congress enacted Subtitle I to control and prevent leaks from underground storage tanks (USTs). The UST program breaks new ground in that, for the first time, the RCRA program applies to products as well as wastes. Specifically, Subtitle I regulates underground tanks storing regulated substances, including petroleum products (e.g., gasoline and crude oil), and Superfund-defined hazardous substances. Tanks storing hazardous wastes, however, are regulated under Subtitle C (see Section III, Chapter 4).

Subtitle I of HSWA directs EPA to develop performance standards for new tanks that include: design, construction, installation, release detection, and compatibility standards for new tanks and requirements applicable to all tank owners and operators concerning leak detection, recordkeeping, reporting, corrective action, and closure. Under authority granted by RCRA Section 9004, EPA established requirements that a State UST program must meet in order for EPA to approve the program. The performance standards, associated regulations, and the State program approval regulations were promulgated September 23, 1988, and became effective December 22, 1988. The financial assurance regulations were promulgated on October 26, 1988, and will be phased in over a two-year period.

The Superfund Amendments and Reauthorization Act of 1986 (SARA) also added Section 9003(h), which gives EPA (and States under cooperative agreements with EPA) authority to clean up releases from UST systems or require their owners and operators to do so. It also establishes a trust fund to finance some of these activities.

This section describes the UST program regulatory requirements, State program approval procedures, inspections and enforcement, and the Leaking Underground Storage Tank Trust Fund.

SCOPE OF THE UNDERGROUND STORAGE TANK PROBLEM

There are currently 1.4 million tanks regulated under Subtitle I of RCRA. The vast majority of these tanks are used to store petroleum products for retail and industrial purposes. Less than five percent store hazardous substances. Of the 1.4 million tanks under regulation, 80 percent are believed to be made of bare steel, which can quickly corrode, allowing contaminants to seep into the ground posing a significant threat to the environment. If, for example, only 10 percent of the USTs at the nation's service stations leaked, or were to leak, releases could occur at over 17,000 sites nationwide. Consequently, leaking underground storage tanks pose a potentially widespread threat to our nation's ground water. EPA estimates that the UST corrective action program alone could cost $60 billion over 30 years, placing it on a par with the costly Superfund program.

Major Causes of Tank Failure

USTs generally release contaminants into the environment in four ways: corrosion, faulty installation, piping failure, and overfills. Galvanic corrosion, or the breakdown of hard refined steel to the natural soft ore, is the most common cause of release from bare steel UST systems. Because the majority of older UST systems are bare steel, corrosion is believed to be the leading cause of releases. The speed and severity of corrosion varies depending on a number of site-specific factors (e.g., soil conductivity) that are almost always present when bare steel is placed underground. Most commonly, part of a tank becomes negatively charged with respect to the surrounding area and acts as a battery. The negatively charged part of the UST starts to corrode at a rate proportional to the intensity of the current.

Why Tanks Leak

- Corrosion
- Faulty installation
- Piping failure
- Overfills

Installation failure encompasses a wide variety of problems, from faulty tank system installation to accidents when vehicles collide with gas pumps. Piping failures can often be a major source of leaks. One EPA study found that piping failure accounted for a substantial portion of the larger spills at USTs. Finally, spills and overfills, usually caused by human error, contribute to tank leakage. Repeated spills also can increase the corrosive nature of soils.

THE UNDERGROUND STORAGE TANK REGULATORY PROGRAM

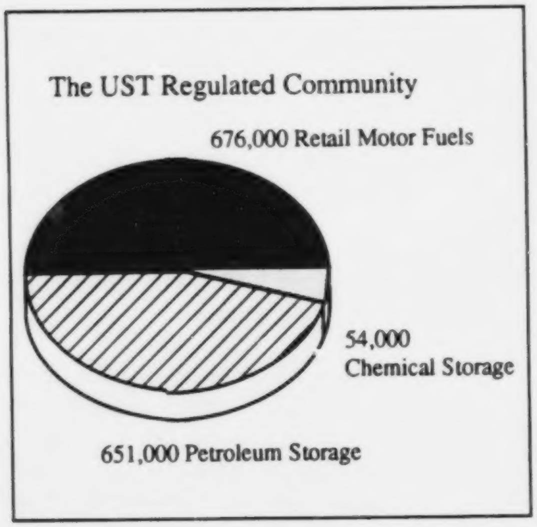
On September 23, 1988, EPA issued the final technical performance standards and associated regulations for USTs. In a separate rulemaking procedure, EPA issued final regulations for financial responsibility for petroleum product USTs on October 26, 1988. The technical standards for USTs encompass the following components:

- Program Scope and Interim Prohibition

- Design, Construction, Installation, and Notification Requirements
- General Operating Requirements
- Release Detection
- Release Reporting, Investigation, and Confirmation
- Corrective Action Requirements
- Underground Storage Tanks
- Financial Assurance.

Program Scope

An underground storage tank is defined as any tank with at least ten percent of its volume buried below ground, including any pipes attached to the tank. Thus, above ground tanks with extensive piping may be regulated under Subtitle I. Unless exempt, any owner or operator who stores petroleum products or a substance defined as hazardous under Superfund (exclusive of Subtitle C hazardous wastes) in a UST, must meet EPA's regulatory requirements (or the requirement of a State with an approved program).



Congress included only about one-third of UST systems in the Subtitle I program, because most USTs are already regulated under other laws or do not threaten human health and the environment. Types of tanks to which the UST program does not apply include:

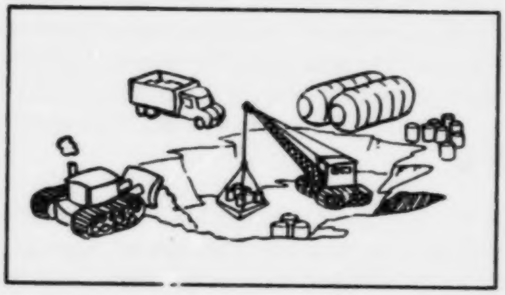
- Farm and residential tanks holding 1,100 gallons or less of motor fuel used for noncommercial purposes
- Tanks storing heating oil used on the premises where it is stored
- Tanks on or above the floor of underground areas, such as basements or tunnels
- Septic tanks and systems for collecting wastewater and storm water
- Flow-through process tanks

- Emergency spill and overfill tanks.

For other underground tanks, such as field-constructed tanks, EPA has not yet collected enough data to justify regulation. For a complete listing of tanks excluded from the regulations, refer to 40 CFR Part 280.

Underground Storage Tank Design, Construction, Installation, and Notification

To facilitate industry implementation, EPA has established standards based on existing codes of practice developed by nationally recognized associations or independent testing laboratories. The regulations specify national standards for tank and piping systems and tightness tests. In lieu of the standards specified in the regulations, new tank and piping systems may be constructed using alternative standards as long as they are equally protective of human health and the environment.



New tank systems, piping, and cathodic protection systems must be designed and installed carefully and in accordance with industry codes. Tank system installation requirements are mostly common sense, including securing the tank, obtaining clean backfill, and ensuring that the substances to be stored are compatible with the tank system. Tanks must be properly installed following manufacturer specifications and certified when installation is satisfactorily completed. They must also be fitted with equipment to prevent spills and overfills, a common cause of tank leakage.

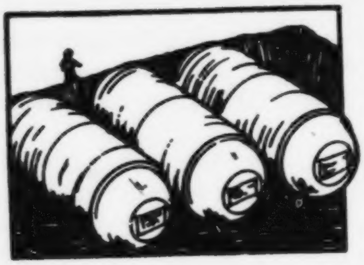
Existing USTs must comply with all requirements for new tanks by December 22, 1998. Any UST system that cannot meet this deadline must close. By giving the regulated community the flexibility to plan for and set its own priorities in upgrading the UST systems, EPA intended to encourage a more rapid voluntary upgrading. This schedule has also provided State and local authorities the flexibility to establish their own schedules for phasing in requirements.

The regulations promulgated pursuant to Subtitle I established a notification program for both existing and new tanks. Under this program, State governors were required by May 1985 to designate the State or local agency to which tank owners should send notifications. The law directed EPA to prescribe the form of the notice, and by May 1986, owners of existing tanks were to have notified the designated State or local agency of each tank's age, size, type, location and use. Owners of USTs taken out of operation after January 1, 1974, but still in the ground also were to submit information on the tanks by May 1986. As of May 8, 1986, all owners of newly installed tanks must have notified EPA or the State of the tank's size, type, location, use, and compliance with applicable regulations. Additionally, after October 24, 1988, sellers of underground tanks must have notified the buyer of their notification requirements. A copy of the notification form is contained in Appendix C.

General Operating Requirements

To prevent spills or overfills, tank owners and operators must take three steps:

- Ensure that the capacity of the tank is greater than the volume of product to be transferred
- Have someone present at all times during the transfer
- Use equipment that can prevent or severely limit spills (e.g., automatic shutoff devices when the tank is almost full).



As with design and installation requirements, standards for product transfer are based on established national standards. Only substances that are compatible with the UST system may be stored in the unit.

UST systems that have corrosion protection must follow guidelines for operation and maintenance of corrosion protection equipment. This includes inspections, record-keeping, and periodic maintenance as suggested by the manufacturer. Records must be readily available for agency officials to review.

Owners and operators may repair existing tanks, but must ensure that repairs will prevent releases due to structural failure or corrosion for the remaining life of the tank. Holes in piping and fittings must be corrected by replacing parts. All repairs must be made in accordance with manufacturer's specifications and owners or operators must maintain repair records.

Release Detection

One of the most important requirements of the UST program is release detection. Without it, the owners, operators, and nearby residents would have to rely on their senses—sight, taste, or smell—to detect a leak. All facilities must have a release detection method that:

- Is capable of detecting a release from any portion of the UST system
- Is installed and maintained in accordance with the manufacturer's instructions, including routine inspections
- Is capable of meeting performance standards that have been designed for the chosen release detection method.

Existing USTs containing petroleum products and hazardous substances must install a release detection system following a five-year phase-in period which ends December 22, 1993. In addition, by the same date, tanks used to store hazardous substances must be retrofitted with secondary containment or replaced with a double-walled tank to prevent leaks.

Owners and operators of petroleum tanks may use a variety of methods such as tank tightness tests, soil gas monitoring, and water table monitoring to comply with the release detection requirements. Monitoring of the space between the UST inner wall and the secondary barrier is mandatory for tanks storing hazardous substances, unless the owner or operator can demonstrate that another method works equally well.

Release detection options differ for pressurized or suction piping. Suction piping that meets stringent standards may not require release detection. Options for piping include:

- Automatic line leak detectors
- Line tightness testing
- Applicable tank methods.

While new UST systems must comply with release detection requirements immediately, requirements will be phased in for existing systems. The date by which existing USTs must comply varies by the age of the tank. Older tanks had to comply by the end of 1989, while newer tanks have until 1993 to comply. Any existing UST system that cannot comply with the release detection requirements must close.

Release Reporting, Investigation, and Confirmation

All suspected releases must be reported within 24 hours. The facility must investigate and confirm the release. Confirmed releases must be cleaned up under the corrective action provisions (see below). Facilities must report any spill or overfill that:

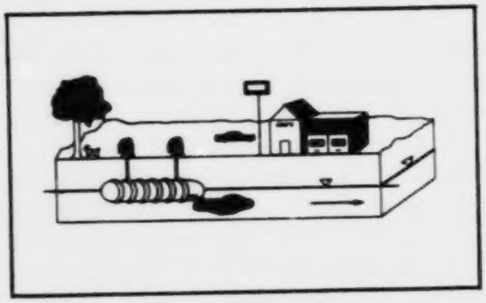
- Is over 25 gallons (for petroleum) or

- Exceeds a CERCLA reportable quantity (for hazardous substances).

Spills of regulated substances not exceeding these amounts must be cleaned up immediately. If the spill cannot be cleaned up in less than 24 hours, it must be reported to the implementing agency.

Corrective Action Requirements

Corrective action for UST systems, like the program for hazardous waste TSDFs, is designed to ensure that releases of regulated substances do not threaten human health and the environment. The corrective action procedure is comprised of a series of steps; the exact steps to be taken and the level of response required vary depending on the severity of the release. Procedures to correct releases for petroleum products and hazardous substances are the same.



Following immediate response activities (including release reporting, immediate containment, and monitoring of explosive hazards), the facility implements initial abatement measures, including:

- Further containment of the regulated substance to prevent continued release

- Prevention of further migration of aboveground and underground releases.

- Continued monitoring and mitigation of explosive hazards

- Remedying hazards posed by excavated soils resulting from response activities

- Performing a site check to evaluate the extent of the release
- Determining the presence of free product on the water table.

Within 20 days of confirmation of the release, the owner or operator must submit a report to the implementing agency. The report details the extent of initial abatement activities. Within 45 days of confirmation of the release, the owner or operator must submit a more comprehensive site characterization report to the implementing agency. The report includes, if applicable, a discussion of procedures carried out to remove free product from the water table.

After reviewing the results, the implementing agency determines whether further, more detailed, response activities are needed. If further corrective action is required, the implementing agency will request detailed corrective action plans, including provisions to remediate contaminated soils, ground water, and surface water. As with the Subtitle C program, the public is fully involved in the cleanup process.

Underground Storage Tank Closure

The closure requirement for UST systems depend on the amount of time that the tank system is out of service. Unless permanently closed, all systems containing regulated substances must continue to comply with all the normal regulatory requirements. USTs closed for less than 3 months have no special requirements. Systems containing substances regulated under Subtitle I closed for 3 to 12 months must leave vent lines open and cap all other lines. After 12 months out of service, USTs must be closed permanently.

Prior to closing the UST system, the owner or operator must assess the site to ensure that no releases have occurred. This usually is done by sampling nearby soil and ground water. Records of this assessment must be maintained for 3 years after the tank is closed. Any release that is discovered will be subject to corrective action. Closure procedures follow accepted industry codes, including emptying the tank and filling it with an inert material, or removing the tank from the ground.

Financial Assurance

In contrast to the Subtitle C TSDF financial assurance requirements, USTs have less stringent reporting requirements and a broader range of allowable financial mechanisms. One key factor that led to this difference was the size of the regulated community: there are about 1.4 million USTs, compared to about 5,000 TSDFs. The size of the UST regulated community makes the administrative burden of implementing financial assurance an important consideration.

EPA issued final regulations for financial assurance October 26, 1988, these regulations did not include requirements for USTs containing hazardous substances. EPA has published an advance notice of proposed rulemaking on financial responsibility for hazardous substance USTs.

Under the new petroleum UST regulations, financial assurance is required to cover both the cost of any required corrective action, as well as compensation for third party liability from accidental releases. State and Federally owned facilities are exempt from these requirements. Per-occurrence coverage is set at either $500,000 or $1 million depending on the nature of facility operation (e.g., petroleum markets vs. non-petroleum markets) and the quantity of product handled. Aggregate coverage is set at $1 million or $2 million depending on the number of USTs to be covered.

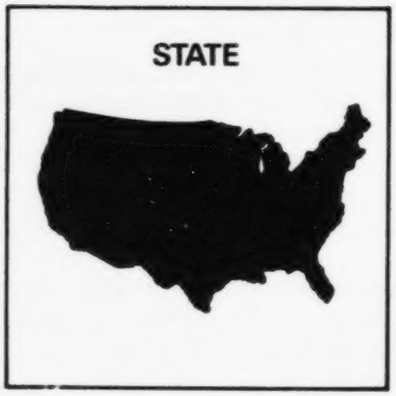
As noted earlier, owners and operators of petroleum USTs may use a number of mechanisms to comply with financial assurance requirements, including all of those allowed for TSDFs. Other allowable mechanisms are risk retention group coverage and State assurance. Risk retention groups are unique in that the individual risks of group members are transferred to a risk pool administered by the group. In turn, the members pay a premium for the coverage they receive. If State assurance is used, the State agrees to provide the required corrective action and assume liability costs. Owners or operators usually pay a premium to the State for the coverage it provides.

If mechanisms for assuring financial responsibility are generally not available in a State, members of the regulated community may petition EPA to suspend enforcement of the financial assurance requirements for 180 days. During this time facilities must take substantial steps toward obtaining coverage (e.g., developing a risk retention group).

STATE UNDERGROUND STORAGE TANK PROGRAMS

Several States already have, or are developing, regulatory programs for underground storage tanks. As with other environmental programs, Subtitle I is designed to avoid interfering with those State programs and to encourage other States to press ahead with control programs.

The State program approval regulations, which were promulgated on September 23, 1989 and became effective December 23, 1989, establish the program approval process and the criteria that EPA will use to evaluate and approve State programs.



According to the regulations, EPA will evaluate various elements of the State program against the corresponding Federal requirements. EPA must determine that the State's requirements are "no less stringent" than the Federal program, and that there is provision for "adequate enforcement".

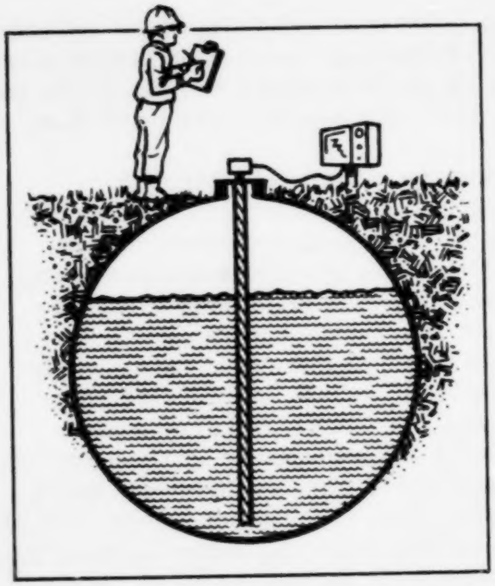
The Agency has defined the environmental performance objectives of the Federal standards and these objectives represent its expectations of what will constitute an adequate State program; the State must have requirements for all UST systems that meet those objectives. EPA can authorize a State to regulate either petroleum USTs, hazardous substance USTs, or both.

The components of the State application are similar to those under other EPA programs. States must submit a transmittal letter from the Governor to EPA requesting program approval and designating a lead State agency. A description of the current State program must be supplied, and a Memorandum of Agreement between the Regional Administrator and the director of the lead State agency must be signed. The State must submit a letter from the State Attorney General indicating that the State has the authority to carry out the required UST program and a copy of all applicable State statutes and regulations. Finally, the State must provide a description of its compliance monitoring and enforcement procedures.

INSPECTIONS AND ENFORCEMENT

RCRA provides authority for Federal and State personnel to:

- Request pertinent information from tank owners
- Inspect and sample tanks



- Monitor and test tanks and surrounding soils, air, surface water, and ground water
- Respond to violations of tank standards through civil or administrative actions
- Seek injunctive relief when human health or the environment are endangered.

EPA may issue compliance orders for any violation of the UST statute or regulations. A violator who fails to comply with the order may be subject to a civil penalty of up to $25,000 per tank per day of non-compliance. In addition, any owner who knowingly fails to notify or submits false information, or any owner or operator who fails to comply with any regulatory requirement under Subtitle I, may be subject to civil penalties of up to $10,000 per tank per day, per violation. Criminal penalties are not authorized under Subtitle I.

LEAKING UNDERGROUND STORAGE TANK TRUST FUND

As part of the amendments to Superfund, Congress created the Leaking Underground Storage Tank Trust Fund (Trust Fund) under Subtitle I. The Trust Fund is financed through a tax on gasoline, diesel, and aviation fuels, and is used when the following conditions are met:

- Cleanup costs exceed coverage requirements of the financially responsible party
- The owner or operator refuses to comply with a corrective action order
- A solvent owner or operator cannot be found
- An emergency situation exists.

In addition to paying for site activities, the Trust Fund may be used to cover administrative and enforcement costs associated with a cleanup. The Trust Fund may only be used to clean up releases of petroleum; cleanups of hazardous substance spills are covered under Superfund or RCRA's corrective action provisions.

To use the Fund, States enter into a cooperative agreement with EPA. The cooperative agreement details how the money is to be disbursed to the State, what it may be used for, and what percent of the cleanup must be funded by the State.

SUMMARY

EPA recently promulgated regulations that affect underground tanks storing petroleum and hazardous substances. The regulatory program is broad in scope, subjecting 1.4 million tanks to notification requirements, performance standards, leak detection, corrective action, financial assurance, and closure. The State program approval regulations are designed to facilitate delegating the program to the States. Subtitle I provides inspection authorities to ensure compliance with the regulations. Subtitle I also gives States with approved programs primary enforcement responsibility. Congress added the Leaking Underground Storage Tank Trust Fund to Subtitle I to fund clean up of certain USTs threatening human health and the environment. To use the Trust Fund, States enter into a cooperative agreement with EPA. The cooperative agreement details how money is to be used and what actions are to be taken.

SECTION V

SUBTITLE J OF RCRA - MANAGING MEDICAL WASTE

- **OVERVIEW**
- **MEDICAL WASTE IDENTIFICATION**
  - Regulated Medical Waste
  - Exempted and Excluded Wastes
- **MEDICAL WASTE GENERATOR REQUIREMENTS**
  - Pre-Transport Requirements
  - Use of the Tracking Form
  - Exception Reports
- **MEDICAL WASTE TRANSPORTER REQUIREMENTS**
  - Transporter Notification
  - Use of the Tracking Form
  - Transporter Semi-Annual Reports
- **MEDICAL WASTE TREATMENT, DESTRUCTION, AND DISPOSAL FACILITY REQUIREMENTS**
  - Use of the Tracking Form
  - Tracking Form Discrepancies
  - On-Site Incinerator Reports
- **SUMMARY**

SECTION V SUBTITLE J OF RCRA - MANAGING MEDICAL WASTE

OVERVIEW

During the summer of 1988, widespread mismanagement of medical waste led to washups of syringes and other medical material on the Atlantic seaboard. In response to this problem, Subtitle J was added to RCRA in November 1988. Subtitle J instructs EPA to develop a two-year demonstration program to track medical waste from generation to disposal in the States that have chosen to participate in the program (Connecticut, New Jersey, New York, Puerto Rico, and Rhode Island). After completion of the demonstration program in 1991, the Agency will report its findings on the program to Congress, which will consider the merits of establishing nationwide medical waste requirements.

EPA enacted interim final regulations in March 1989. The regulations, found in 40 CFR Part 259, establish requirements for medical waste generators, transporters, and treatment, destruction, and disposal facilities (TDDs). This chapter describes EPA's framework for medical waste management:

- Medical Waste Identification
- Medical Waste Generator Requirements
- Medical Waste Transporter Requirements
- Medical Waste Treatment, Destruction, and Disposal Facility Requirements.

MEDICAL WASTE IDENTIFICATION

Medical waste is defined in 40 CFR 259.10 as any solid waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in related research, biological production, or testing.

Regulated Medical Waste

Regulated medical waste is a subset of all medical wastes and includes seven distinct categories:

- Cultures and stocks of infectious agents
- Human pathological wastes (e.g., tissues, body parts)
- Human blood and blood products
- Sharps (e.g., hypodermic needles and syringes used in animal or human patient care)

- Certain animal wastes
- Certain isolation wastes (e.g., wastes from patients with highly communicable diseases)
- Unused sharps (e.g., suture needles, scalpel blades, hypodermic needles)

In addition, mixtures of solid waste and regulated medical waste are subject to the requirements. Mixtures of hazardous and regulated medical waste are subject to the 40 CFR Part 259 requirements only if shipment of such a mixture is not subject to hazardous waste manifesting (e.g., the hazardous waste is generated by a conditionally exempt generator).

Exempted and Excluded Wastes

The definition of "medical waste" excludes any hazardous waste identified or listed under 40 CFR Part 261 or any household waste defined in 40 CFR 261.4(b)(1). In addition, residues from treatment and destruction processes, or from the incineration of regulated medical wastes, are excluded from the requirements, as are human remains intended to be buried or cremated. Etiologic agents being shipped pursuant to other federal regulations, and samples of regulated medical waste shipped for enforcement purposes are exempt from the 40 CFR Part 259 requirements.

MEDICAL WASTE GENERATOR REQUIREMENTS

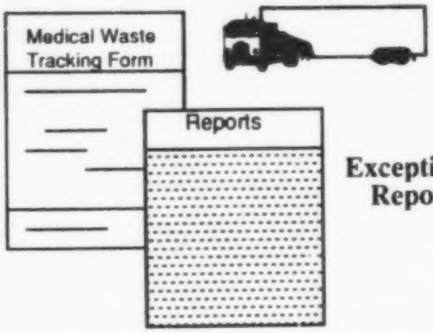
Subtitle J directs EPA to include a requirement to segregate the regulated medical waste at the point of generation, where practicable. All generators of regulated medical waste are subject to the program requirements if they are located in one of the demonstration States. The tracking requirements for generators of less than 50 pounds per month are more flexible than those for larger generators. However, all generators are subject to the same waste management requirements.

Pre-Transport Requirements

Generators (including transporters who repackage shipments) are responsible for properly handling medical waste before shipping it off-site. The waste must be segregated into sharps, fluids, and other wastes and then packed in rigid, leak-resistant containers. Additionally, sharps must be packed in puncture resistant, and fluids in leak resistant, containers. Untreated medical waste must have a water resistant label on the outside of the packaging identifying it as "infectious waste" or "medical waste" or displaying the bio-hazard symbol. Regulated medical waste shipments must be marked with information identifying the generator and each individual transporter. Treated wastes need not be labeled.

Use of the Tracking Form

Similar to the hazardous waste manifest, the tracking form is a mechanism for tracing medical waste from generation through disposal. Generators must initiate a tracking form for most off-site shipments of waste. Copies of the form must be retained by the generator, each transporter, and each facility handling the waste. Appendix D contains a sample tracking form.



Exception Reports

Generators who do not receive a copy of the original tracking form within 45 days of the date the shipment was accepted by the initial transporter must submit an exception report to the Region in which the generator is located. The report must include a copy of the tracking form in question, and a description of the efforts the generator made to locate the shipment. The generator must retain a copy of the report.

MEDICAL WASTE TRANSPORTER REQUIREMENTS

Transporter Notification

Transporters who ship regulated medical waste that was generated in the demonstration program States must submit a one time notification to EPA Headquarters. EPA will then issue the transporter a medical waste identification number to be used on all tracking forms and on all transporter reports.

Use of the Tracking Form

Transporters may only accept medical waste shipments that are properly packaged, labeled, and marked and are accompanied by a tracking form (if one is required). Upon delivery of the shipment to a subsequent transporter or to the facility receiving the waste, a copy of the form must be signed and retained by the transporter. Transporters must initiate a tracking form for shipments of medical waste received from generators of less than 50 pounds per month, who ship less than 50 pounds. These small shipments may be consolidated by the transporter onto one tracking form. Transporters may also consolidate all shipments of less than 220 pounds onto a single tracking form.

Transporter Semi-Annual Reports

Transporters must submit semi-annual reports to EPA and the appropriate State agency that details information about their medical waste shipments. Separate reports must be completed for each demonstration State in which the transporter is active.

MEDICAL WASTE TREATMENT, DESTRUCTION, AND DISPOSAL FACILITY REQUIREMENTS

Use of the Tracking Form

All TDDs must sign and return tracking forms to the generator or the party that initiated the tracking form. Intermediate handlers (those facilities that treat or destroy regulated medical waste) must return tracking forms to the original generator for shipments they receive, and initiate a new tracking form for shipments of treated or destroyed waste sent to destination facilities.

Tracking Form Discrepancies

Facilities that receive regulated medical waste shipments that differ in certain respects from the waste indicated on the tracking form must attempt to resolve the discrepancy. Failing resolution, they must submit a letter to the Regional Administrator(s) (for the generator's State and the State where the TDD is located, if different) and to the generator's State within 15 days of receiving the waste. The report must explain the discrepancy and include a copy of the suspect tracking form.

On-Site Incinerator Reports

Owners or operators of incinerators that burn medical wastes generated on site must submit reports to EPA covering the first and third six-month periods of the demonstration program. These reports should describe, among other things, the amounts of medical waste received and burned on site, and the date and length of each incineration cycle.

SUMMARY

Congress recently added a new Subtitle J to RCRA to address environmental problems associated with mismanagement of medical wastes. EPA published interim final rules establishing a demonstration program for the tracking of medical waste. In 1991, the program will be evaluated for national applicability.

The medical waste regulatory requirements apply to generators located in the States participating in the program and to transporters and facilities nationwide who handle those generators' wastes.

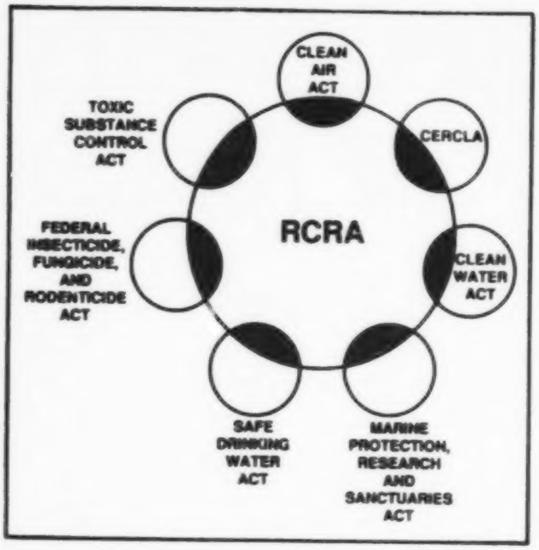
SECTION VI

RCRA AND ITS RELATIONSHIP TO OTHER ENVIRONMENTAL STATUTES

- **CHAPTER 1 - LEGISLATIVE FRAMEWORK FOR ADDRESSING HAZARDOUS WASTE PROBLEMS**
- **CHAPTER 2 - SUPERFUND: THE HAZARDOUS WASTE CLEANUP PROGRAM**
- **CHAPTER 3 - RCRA AND SUPERFUND: HOW THE TWO PROGRAMS INTERACT**

SECTION VI RCRA AND ITS RELATIONSHIP TO OTHER ENVIRONMENTAL STATUTES

OVERVIEW


CLEAN AIR ACT
TOXIC SUBSTANCE CONTROL ACT
CERCLA
RCRA
FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT
CLEAN WATER ACT
SAFE DRINKING WATER ACT
MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

EPA's role is to protect human health and the environment. Many environmental laws have been enacted to address releases, or threats of releases, of hazardous substances. An understanding of these laws is necessary to see where RCRA fits into the national environmental protection program established by Congress. Each environmental statute has its own particular focus, whether it is controlling the level of pollutants introduced into a single environmental medium (i.e., air, soil, water) or addressing a specific area of concern, such as pesticides or waste cleanup.

While the segmentation of environmental issues eases the drafting of legislation, it complicates the implementation of environmental protection regulations. The media, practice or chemical-specific boundaries established in the nation's environmental statutes are often artificial. Many different types of practices may be responsible for the release into the environment of the same contaminant. Moreover, individual contaminants are not confined to specific media. Volatile organic compounds such as benzene or toluene, for instance, can be released into and contaminate the air, soil, and water. Additionally, uncontrolled pollutants may travel long distances by natural means and change physically, affecting multiple media. Therefore, a medium or contaminant-specific approach cannot fully address the magnitude and complexities of the waste management problem.

This section consists of three chapters:

- Chapter 1 - outlines the legislative framework for addressing environmental problems.
- Chapter 2 - focuses on one crucial aspect of this legislative framework, the Superfund hazardous waste cleanup program.

- Chapter 3 - discusses the interactions between RCRA and Superfund.

CHAPTER 1

LEGISLATIVE FRAMEWORK FOR ADDRESSING HAZARDOUS WASTE PROBLEMS

- **OVERVIEW**
- **ENVIRONMENTAL STATUTES**
  - Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund)
  - Clean Air Act (CAA)
  - Clean Water Act (CWA)
  - Marine Protection, Research, and Sanctuaries Act (MPRSA)
  - Safe Drinking Water Act (SDWA)
  - Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
  - Toxic Substances Control Act (TSCA)
- **SUMMARY**

CHAPTER 1 LEGISLATIVE FRAMEWORK FOR ADDRESSING HAZARDOUS WASTE PROBLEMS

OVERVIEW

The legislation that serves as the basis for managing hazardous wastes can be divided into three categories:

- The central statutory authorities are RCRA and CERCLA. The former creates a "cradle-to-grave" management system for current and future wastes while the latter authorizes cleanup of releases of hazardous substances.
- Several statutes are media-specific, and limit the amount of wastes introduced into the air, waterways, oceans, and drinking water.
- Other statutes directly limit the production, rather than the release of chemical substances and products that may contribute to the nation's wastes.

This chapter summarizes each statute and highlights its interaction with RCRA.

ENVIRONMENTAL STATUTES

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)

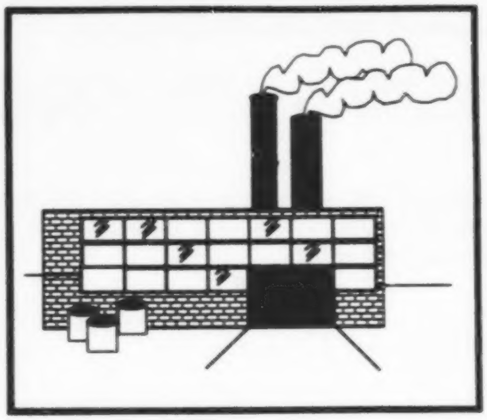
RCRA and CERCLA are unique in that their primary purpose is to protect human health and the environment from the dangers of hazardous waste. However, these statutes address the hazardous waste problem from two fundamentally different approaches:

- RCRA has a regulatory focus and authorizes control over the management of wastes from the moment of generation until final disposal.
- Superfund has a response focus. Whenever there has been a breakdown in the waste management system (i.e., a release of a hazardous substance), the statute authorizes cleanup actions.

This distinction, while useful for providing an overview, does not present a complete picture of how RCRA and CERCLA interact. Chapter 2 provides a more detailed discussion of the Superfund statute. Chapter 3 examines the multifaceted relationship between the RCRA and Superfund programs.

Clean Air Act (CAA)

Congress enacted the Clean Air Act (CAA), to limit the emission of pollutants into the atmosphere, in order to protect human health and the environment from the effects of airborne pollution. For six pollutants, EPA has established National Ambient Air Quality Standards (NAAQS). Regulation of these six pollutants affords the public some protection from toxic air pollutants. Primary responsibility for meeting the requirements of the CAA rests with States, who must submit plans for achieving the NAAQS. The CAA does not directly regulate certain toxic metals but its regulation of particulate matter may reduce metal emissions as well. Limitations on total volatile organic compounds may provide protection from known or suspected carcinogens for which specific air emission standards do not exist. Under Section 112 of the CAA, EPA also has the authority to designate hazardous air pollutants and set National Emission Standards for Hazardous Air Pollutants (NESHAPS).



The major interactions between RCRA and CAA include the following:

- Air emissions from incinerators and other types of TSDFs regulated under RCRA must comply with applicable ambient standard and/or emission limitations of the CAA. Using authorities contained in Section 3004 (n) of RCRA, EPA is developing more stringent air emission standards for TSDFs.

- Extraction of pollutants from air emissions under CAA controls (e.g., scrubbers) can create hazardous wastes or sludges containing such wastes. Disposal of these materials must comply with RCRA.

Clean Water Act (CWA)

The CWA requires a permit for any discharge into the nation's waterways. For waste materials, only two discharge options are allowed:

- "Direct discharge" into surface water pursuant to a National Pollution Discharge Elimination System (NPDES) permit

- "Indirect discharge," which means that the waste is first sent to a publicly owned treatment works (POTW), and then after treatment by the POTW, discharged pursuant to an NPDES permit.

The NPDES permit is granted on a case-by-case basis and the terms of the permit depend on a number of variables.

Essentially, the NPDES permit limits the permissible concentration of toxic constituents or conventional pollutants in effluents discharged to a waterway.

If the indirect discharge option is chosen, the generator of the wastes cannot simply transfer the materials to a POTW. Rather, the wastes must satisfy applicable treatment and toxic control requirements known as pretreatment standards, where they exist. POTWs that receive hazardous wastes for treatment are also subject to certain RCRA "permit-by-rule" requirements, including those for corrective action.

The major interactions between RCRA and CWA are as follows:

- Sludge resulting from wastewater treatment and pretreatment under CWA must be handled as a RCRA waste and disposed of at a RCRA facility if it is hazardous.
- Discharges from a RCRA-permitted facility must be pursuant to an NPDES permit. This means that either the facility itself has obtained an NPDES permit or the wastes meet CWA pretreatment standards and have been transported to a POTW.

Marine Protection, Research, and Sanctuaries Act (MPRSA)

MPRSA requires a permit for any material that is transported from a U.S. port or by a U.S. vessel for deposition at sea. Therefore, wastes from a RCRA generator or permitted facility cannot be deposited in the ocean, except according to a separate MPRSA permit.

Safe Drinking Water Act (SDWA)

The Safe Drinking Water Act (SDWA) protects the nation's drinking water supply by setting drinking water standards, known as Maximum Contaminant Levels (MCLs) and regulating underground injection wells. Both the MCLs and the Underground Injection Control (UIC) program are especially relevant to RCRA. The MCLs are sometimes used by the RCRA program as cleanup standards for corrective action.

The UIC program bans some types of underground disposal of wastes considered hazardous under RCRA. With some exceptions, other materials cannot be injected underground without a UIC permit. RCRA itself contains parallel provisions prohibiting underground injection of hazardous wastes.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

FIFRA is concerned solely with pesticides, and regulates the introduction and uses of these products in the marketplace. As such, its regulatory focus is different from most of the statutes discussed in this chapter. While the other statutes attempt to minimize and manage waste by-products at the end of the industrial process, FIFRA provides controls as to whether (and how) certain products are manufactured or sold in the first place.

INSECTICIDE
DANGER

PESTICIDE

FIFRA imposes a system of pesticide product registrations. These include:

- Pre-market review of potential health and environmental effects before a pesticide can be introduced in the United States
- "Re-registration" of products introduced prior to the enactment of FIFRA to assess their safety in light of current standards
- Classification of pesticides for restricted or general use. Restricted products can be used only by those whose competence has been certified by a State program.

FIFRA's effect on RCRA is indirect. FIFRA controls limit the level of toxic pesticides that are produced and thereby reduce the amount of waste that needs to be managed.

Toxic Substances Control Act (TSCA)

TSCA's primary focus is similar to that of FIFRA in that the statute provides authorities to control the manufacture and sale of certain chemical substances. The authorities include:

- Testing of chemicals currently in commercial production or use
- Pre-market screening and regulatory tracking of new chemical products
- Controlling unreasonable risks once a chemical substance is determined to have an adverse effect on health or the environment. These powers include:
  - Prohibiting the manufacture or certain uses of the chemical
  - Requiring labeling

  - Limiting volume of production or concentration
  - Requiring recordkeeping about production
  - Requiring replacement or re-purchase of products
  - Controlling disposal methods.

Disposal method authority was exercised for polychlorinated biphenyls (PCBs). While PCB disposal is generally regulated by TSCA, RCRA also regulates disposal of PCBs when they are mixed with hazardous waste.

TSCA has a direct and indirect effect on RCRA. The direct effect concerns controls on the disposal methods of certain chemicals such as PCBs. The indirect effect is the same as for FIFRA: controls on the manufacture and use of certain chemical substances limit the amount of waste that need to be managed.

SUMMARY

Eight major environmental statutes work together to address hazardous waste problems. The two central authorities are RCRA and CERCLA; the former provides for day-to-day management of wastes while the latter allows for cleanups in the event of waste releases. The other statutes limit the amount of waste released into a particular environmental medium or control the production of certain products. These other statutes include:

- Clean Air Act
- Clean Water Act
- Marine Protection, Research, and Sanctuaries Act
- Safe Drinking Water Act
- Federal Insecticide, Fungicide, and Rodenticide Act
- Toxic Substances Control Act.

CHAPTER 2

SUPERFUND: THE HAZARDOUS WASTE CLEANUP PROGRAM

- OVERVIEW
- PURPOSE OF SUPERFUND
- HISTORY OF THE STATUTE
- TRIGGER FOR STATUTORY RESPONSE
- TYPES OF RESPONSE ACTIONS
- TITLE III
- SUMMARY

CHAPTER 2 SUPERFUND: THE HAZARDOUS WASTE CLEANUP PROGRAM

OVERVIEW

This chapter focuses on a central part of the legislative framework for environmental protection: the Superfund cleanup program established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

CERCLA is designed to remedy the mistakes in hazardous waste management made in the past, while RCRA is concerned with avoiding such mistakes through proper management in the present and future. As the previous chapter indicated, RCRA mainly regulates how wastes should be managed to avoid potential threats to human health and the environment. CERCLA, on the other hand, comes into play primarily when mismanagement occurs or has occurred; i.e., when there has been a release or a substantial threat of a release of a hazardous substance or of a pollutant or contaminant (that presents an imminent and substantial threat to human health) into the environment. In such instances, CERCLA authorizes a number of government actions to remedy the conditions that could result in a release or the effects of a release itself. This chapter discusses why CERCLA was enacted and summarizes some of the statute's authorities.

PURPOSE OF SUPERFUND

Superfund was established in response to the discovery in the late 1970s of a large number of abandoned, leaking, hazardous waste dumps that were threatening human health and contaminating the environment. One of the best known of these dumps was Love Canal in Niagara Falls, New York, (near Buffalo) where a chemical company had buried large amounts of hazardous waste in a canal originally designed to transport water. After the canal was capped with clay and soil, an elementary school was built over the site, and the city of Niagara Falls grew rapidly around it.

In the 1970s, an unusual number of community residents (especially those who attended the elementary school) developed serious health problems. Moreover, the residents complained of noxious fumes and of chemicals oozing out of the ground. Subsequent government investigations found extensive contamination of the area, including ground-water supplies. In 1978, President Jimmy Carter declared Love Canal a Federal disaster area, and most of the residents in the area around the site were relocated.

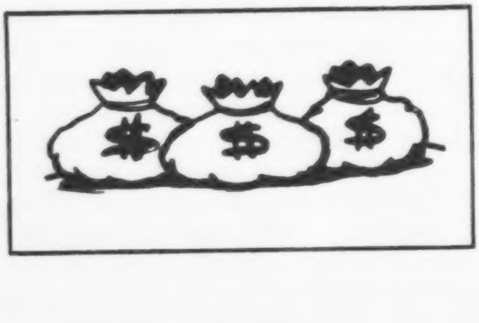
Declaring the site a Federal disaster area was the only viable option available to the Federal government. RCRA did not provide relief because the problem did not involve the current management of wastes. Legal actions against the responsible parties did not offer a solution because they are too time-consuming. Unfortunately, subsequent investigations indicated that the scope of the waste dump problem went far beyond Love Canal making the Federal disaster relief option impractical. In late 1980, Congress passed CERCLA to address the "ticking time bombs" represented by thousands of potential Love Canals throughout the country.

HISTORY OF THE STATUTE

CERCLA, as originally enacted in 1980, authorized a five-year program by the Federal government to perform the following primary tasks:

- Identify those sites where releases of hazardous substances had already occurred or might occur and posed a serious threat to human health, welfare, or the environment.
- Take appropriate action to remedy those releases.
- See that the parties responsible for the releases pay for the cleanup actions.

To accomplish these tasks, CERCLA gave new cleanup authority to the Federal government, created a $1.6-billion trust fund to pay for government cleanup, and imposed cleanup liability on those responsible. This "Superfund" (Fund) consisted primarily of tax assessments on oil and designated chemicals.



During the five-year period of the original Superfund program, two facts became increasingly clear: the problem of abandoned hazardous waste sites was more extensive than originally thought and its solution would be more complex and time-consuming. The Superfund Amendments and Reauthorization Act of 1986 (SARA) not only extended CERCLA for another five years, but increased the Fund five-fold: from $1.6 billion to $8.5 billion. SARA established new standards and schedules for site cleanup and also created new programs for informing the public of risks from hazardous substances in their community and preparing communities for hazardous substance emergencies.

TRIGGER FOR STATUTORY RESPONSE

CERCLA response authorities are triggered by a "release" or a "substantial threat of a release" of dangerous substances into the environment (e.g., a chemical spill from a tank truck accident or a leak from a damaged drum). The release must involve either:

- A hazardous substance, as defined in the statute, or
- A pollutant or contaminant that may present an imminent or substantial danger to public health or welfare.

"Hazardous substance" is defined to include "hazardous waste" under RCRA, as well as substances regulated under CAA, CWA, and TSCA. "Pollutant or contaminant" is broadly defined to include any substance that is reasonably anticipated to cause illness or deformation in any organism. Both definitions specifically exclude petroleum and natural gas.

TYPES OF RESPONSE ACTIONS

CERCLA authorizes two types of government response actions to remedy the release of a hazardous substance: removal actions and remedial actions.

Removals are short-term cleanup actions that usually address problems only at the surface of a site. They are conducted in response to an emergency situation (e.g., to avert an explosion, to cleanup a hazardous waste spill, or to stabilize a site until a permanent remedy can be found). Removal actions are limited to 12 months duration or $2 million in expenditures, although in certain cases these limits may be extended.

Remedial actions represent the final remedy for a site and generally are more expensive and of a longer duration than removals. This is because the remedial actions are intended to provide permanent solutions to hazardous substance threats. (Some current treatment remedies are estimated to cost an average of $16 million and to take approximately 10 years to complete.) EPA can take remedial actions only at hazardous waste sites on the National Priorities List (NPL). Currently, there are over 1,100 sites either on the NPL or proposed for inclusion. Sites are placed on the NPL after being evaluated through the Hazard Ranking System (HRS). The HRS is a model that determines the relative risk to public health and the environment posed by hazardous substances in ground water, surface water, air, and soil. (The HRS is currently being revised.) It is possible that both removal and remedial actions may be taken at the same site.

TITLE III

Title III of SARA, the Emergency Planning and Community Right-to-Know Act, was enacted in reaction to the more than 2,000 deaths caused by the release of a toxic chemical in Bhopal, India. Title III has two primary purposes:

- To help communities prepare to respond in the event of a chemical emergency
- To increase the public's knowledge of the presence and threat of hazardous chemicals.

To this end, Title III requires the establishment of State and local committees to prepare communities for potential chemical emergencies. The focus of the preparation is a community emergency response plan that must: 1) identify the sources of potential emergencies, 2) develop procedures for responding to emergencies, and 3) designate who will coordinate the emergency response.

Title III also requires facilities to notify the appropriate State and local authorities if releases of certain chemicals occur. Facilities also must compile specified information about hazardous substances they have on site and the threat posed by those substances. Some of this information must be provided to State and local authorities. More specific data must be made available upon request from those authorities or from the general public.

SUMMARY

CERCLA authorizes cleanup responses whenever there is a release or a substantial threat of a release of a hazardous substance or of a pollutant or contaminant that presents an imminent and substantial danger to public health. Two types of response actions include removals and remedial actions: removals are short-term actions to address emergency situations; remedial actions involve a larger expenditure of time and resources because they provide permanent solutions to hazardous substance problems.

SARA Title III also provides a number of procedures to prepare communities for chemical emergencies. These include emergency planning and community right-to-know requirements.

CHAPTER 3

RCRA AND SUPERFUND: HOW THE TWO PROGRAMS INTERACT

- OVERVIEW
- RELEVANT DEFINITIONS
- RCRA AND REMEDY SELECTION UNDER CERCLA
- RCRA CORRECTIVE ACTION VS. CERCLA RESPONSE
- IMMINENT HAZARDS UNDER RCRA AND CERCLA
- SUMMARY

CHAPTER 3 RCRA AND SUPERFUND: HOW THE TWO PROGRAMS INTERACT

OVERVIEW

As presented in the previous chapter, the distinction between RCRA and CERCLA is that Superfund cleans up releases of hazardous wastes while RCRA manages those wastes to prevent releases. More specifically, RCRA authorizes a general regulatory program to manage all hazardous wastes from "cradle-to-grave": from generation to ultimate disposal. CERCLA, on the other hand, provides authority to respond whenever a release or a substantial threat of a release that threatens human health or the environment occurs. This section examines the major areas where the Superfund and RCRA programs interact.

RELEVANT DEFINITIONS

RCRA and CERCLA both address hazards in the environment. However, CERCLA is the more comprehensive statute. CERCLA "hazardous substances" encompass RCRA "hazardous wastes" as well as other toxic pollutants regulated by the CAA, CWA, and TSCA. Thus, all RCRA "hazardous wastes" may trigger CERCLA response actions when released into the environment. RCRA nonhazardous "solid wastes," on the other hand, do not trigger CERCLA response actions unless as "pollutants" or "contaminants" they present an "imminent and substantial danger."

RCRA AND REMEDY SELECTION UNDER CERCLA

In assessing cleanup remedies, CERCLA specifically requires that EPA take into account the "goals, objectives, and requirements" of RCRA, as well as the long-term uncertainties associated with land disposal, long-term maintenance costs, and other considerations typical of RCRA.

CERCLA specifically requires that on-site remedies attain any legally applicable or relevant and appropriate requirements (ARARs), standards, criteria, or limitations under Federal or more stringent State environmental laws, including RCRA, unless site-specific waivers are obtained. Furthermore, EPA policy provides that removal actions attain ARARs whenever practicable. This means, for example, that whenever a remedial action involves on-site treatment, storage, or disposal of hazardous waste, the action must meet RCRA's technical standards for such treatment, storage, or disposal (i.e., 40 CFR Part 264). EPA has interpreted the law to mean that Superfund sites are not required to comply with administrative requirements (e.g., recordkeeping and permits), but RCRA technical requirements do apply as ARARs. The National Contingency Plan (40 CFR Part 300), which is the blueprint for the Superfund program, details the application of ARARs to Superfund remedial actions.

ARARs = Applicable or Relevant and Appropriate Requirements

Once hazardous wastes are transported from a site, they are considered as having been "generated" under RCRA. Therefore, all generation, transportation, and TSD requirements under RCRA must be followed. This means that off-site shipments must be accompanied by a manifest. In particular, the off-site disposal of hazardous wastes can occur only at a RCRA facility in a unit in full compliance with the Subtitle C requirements. Agency policy requires that the facility be inspected by EPA six months prior to receiving the waste.

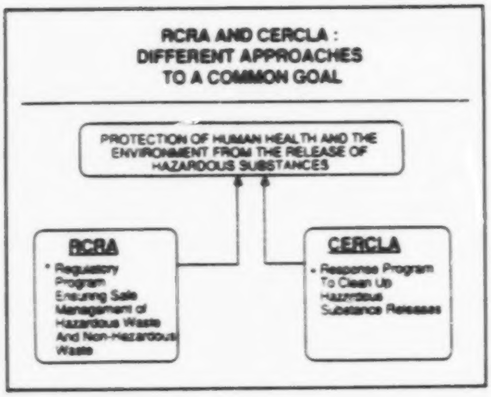
For off-site land disposal of wastes, CERCLA contains two additional requirements. First, the unit in which the wastes are to be disposed must not be releasing hazardous wastes or constituents into ground water, surface water, or soil. Second, any releases from other units of the facility must be under an approved RCRA corrective action program.

Finally, after October 1989, EPA may not take or fund remedial actions in a State unless the State ensures the availability of hazardous waste treatment and disposal capacity. This capacity must be for facilities that are in compliance with RCRA Subtitle C requirements, and must be adequate to manage hazardous wastes projected to be generated within the State over 20 years.

RCRA CORRECTIVE ACTION VS. CERCLA RESPONSE

RCRA authorizes EPA to require corrective action (under an enforcement order or as part of a permit) whenever there is, or has been, a release of hazardous waste or constituents. The statute provides similar corrective action authority in response to releases at interim status facilities. Further, RCRA allows EPA to require corrective action beyond the facility boundary. EPA interprets the term "corrective action" to cover the full range of possible actions, from studies and interim measures to full cleanups. Anyone who violates the corrective action order can be fined up to $25,000 per day of noncompliance and runs the risk of having interim status suspended or revoked.

On the whole, the CERCLA response authority has a broader reach than RCRA's corrective action. The RCRA provisions apply only to RCRA-regulated facilities. CERCLA, on the other hand, can be utilized to require response work by any potentially responsible party (PRP) at any place where there is a release or potential release. Moreover, the CERCLA response authorities go beyond requiring responsible parties to perform cleanup work. Under CERCLA, governmental and private parties who are not PRPs can perform such work and receive Fund financing. EPA can then seek reimbursement from PRPs.


RCRA AND CERCLA :
DIFFERENT APPROACHES
TO A COMMON GOAL
PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT FROM THE RELEASE OF HAZARDOUS SUBSTANCES
RCRA
• Regulatory Program Ensuring Safe Management of Hazardous Waste And Non-Hazardous Waste
CERCLA
• Response Program To Clean Up Hazardous Substance Releases

The RCRA and Superfund programs use different labels, but follow roughly parallel procedures in responding to releases. In both, the first step after discovery of a release is an examination of available data to see if an emergency action is warranted. In both, short-term measures are authorized to abate the immediate adverse effects of a release. Once an emergency has been addressed, both programs provide for an investigation and formal study of long-term cleanup options. When these analyses are completed, both provide for formal selection of a remedy. The major procedural difference between the two programs involves ranking. CERCLA requires that site conditions be analyzed according to the HRS and that only NPL sites receive any remedial action funding. Currently, no comparable requirement exists in the corrective action procedures.

The facility owner or operator implements RCRA corrective action. On the other hand, a number of different parties can implement a CERCLA remedial action in a number of different ways. For example, a State could enter into a cooperative agreement or the Federal government and the PRPs could each do a portion of cleanup work pursuant to a mixed funding settlement agreement.

IMMINENT HAZARDS UNDER RCRA AND CERCLA

Both CERCLA and RCRA contain provisions that allow EPA to require persons contributing to an imminent hazard to take the necessary actions to clean up releases. Under CERCLA Section 106, EPA has the authority to abate an imminent or substantial danger to public health or the environment that results from a hazardous substance release. The authority under RCRA Section 7003 is essentially the same, except that RCRA's imminent hazard provision addresses nonhazardous as well as hazardous solid waste releases. In an enforcement action, the CERCLA and RCRA imminent hazard provisions may be used in tandem to strengthen the government's case.

CHAPTER 3 RCRA AND SUPERFUND: HOW THE TWO PROGRAMS INTERACT

SUMMARY

The general distinction between RCRA and CERCLA is that the former authorizes management of wastes while the latter authorizes cleanup responses whenever there is a release of wastes. However, the two programs overlap. For example, RCRA standards are considered ARARs and are central to selecting remedies under CERCLA. Moreover, RCRA's corrective action and CERCLA's remedial action utilize parallel (but not identical) procedures. Finally, both statutes authorize EPA to act in the event of an imminent hazard.

SECTION VII

PUBLIC PARTICIPATION

- **OVERVIEW**
- **GENERAL EPA PUBLIC PARTICIPATION REQUIREMENTS**
  - Administrative Procedures Act
  - Freedom of Information Act
- **RCRA PUBLIC PARTICIPATION REQUIREMENTS**
  - Statutory Requirements
  - Regulations
  - Guidance
- **OUTREACH AND PUBLIC ASSISTANCE**
  - RCRA/Superfund Hotline
  - Office of Ombudsman
- **SUMMARY**

SECTION VII PUBLIC PARTICIPATION

OVERVIEW

PUBLIC
PARTICIPATION

The right of the public to participate in government decisions is basic to our democratic system. In few places is this right exercised more than in the area of hazardous waste management. The public is deeply concerned about, and often fearful of, the potential impacts of hazardous waste on their health and safety. In recognition of their rights and interest in hazardous waste management, and in a conscious attempt to include them in the decisionmaking process, the government gives the public numerous opportunities to get involved in all phases of the RCRA program.

The overall goal of public participation is to build trust and credibility, and to keep emotions, human energy, and conflicts focused on substantive issues and solutions. Public participation provides an opportunity for all interested parties to become informed and involved, and to influence program development and implementation. Further, EPA managers have found that active public participation provides a forum to identify and address concerns thus reducing conflict.

This chapter details the public participation framework established for EPA and, where applicable, specifically for RCRA. It includes descriptions of the statutory and regulatory requirements and a summary of guidance materials that address public participation.

GENERAL EPA PUBLIC PARTICIPATION REQUIREMENTS

Administrative Procedures Act

In consideration of the importance of citizen involvement, Congress established public participation requirements that apply to all environmental programs administered by EPA. They are outlined in the Administrative Procedures Act ((APA) 5 U.S.C. Sections 551-559) and include:

- Providing information and soliciting comments on all proposed and final Agency actions, e.g., the development of regulations

- Incorporating public comments into the decisionmaking process, and

- Establishing an appeals process for certain Agency decisions.

State employees should consult State administrative regulations for further guidance on public participation requirements. The participation requirements in the Federal APA assure the public a voice in EPA decisionmaking.

Freedom of Information Act

The Freedom of Information Act (FOIA) — which serves as the government's primary mechanism for handling information requests — guarantees that the public will have access to government records, including those of the EPA. Specifically, it requires each Federal agency to establish procedures for handling FOIA requests regarding government statutes, regulations, standards, permit conditions, requirements, orders, or policies.

EPA, therefore, has pursued a policy of fully disclosing its records to the public, consistent with the rights of individuals to privacy, the rights of persons entitled to confidential business information (CBI), and the need for EPA to promote frank internal policy deliberations. EPA will disclose information to any requester to the fullest extent possible without unjustifiable expense or unnecessary delay.

FOIA requests are written requests for records held by or believed to be held by EPA. FOIA requests must reasonably describe the records in a manner that will permit proper identification of government documents or records. Although requesters do not need to name the specific documents in question, they must provide a clear description of the information they seek. The FOIA refers to all written requests, regardless of whether the requester refers to the FOIA or not. Any existing form of information may be covered, but the FOIA does not require the creation of new records. A FOIA request can be made by any person, corporation, or organization.

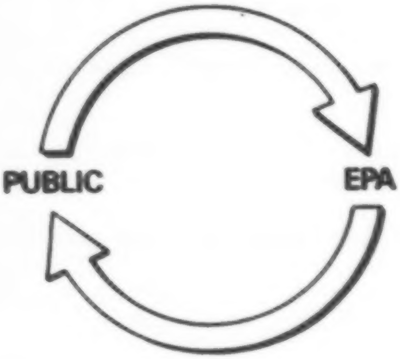
RCRA PUBLIC PARTICIPATION REQUIREMENTS

Because the issues surrounding hazardous waste management often arouse intense public sentiments, the public participation framework developed under RCRA further expands citizen opportunity for involvement well beyond Agency-wide requirements. This framework has three parts:

- Statutory requirements
- Regulatory requirements, and
- Guidance.

Statutory Requirements

When EPA implements the RCRA program within a State, the Agency gives the public access to facility and site information relating to permitting, compliance, enforcement, and inspections. RCRA Section 3006 requires authorized States to make this information available to the public in a manner



substantially similar in method and degree to EPA-implemented RCRA programs. In certain cases, however, the information may be confidential and unavailable to the public, (e.g., when company trade secrets are involved).

- Public Comment: Section 3006 of RCRA requires that public comments be solicited before:
  - A State submits an application for Subtitle C final authorization
  - EPA decides to grant or deny a State authorization
  - EPA withdraws a State's authorization, and
  - EPA suspends or revokes a hazardous waste facility permit.
- Enforcement: Section 7002 of RCRA gives fairly broad legal authority to ensure that the entire RCRA program is properly implemented. It allows a citizen to bring a civil suit against any person or government agency alleged to be in violation of any permit, standard, regulation, condition, requirement, or order that has become effective under the Act.

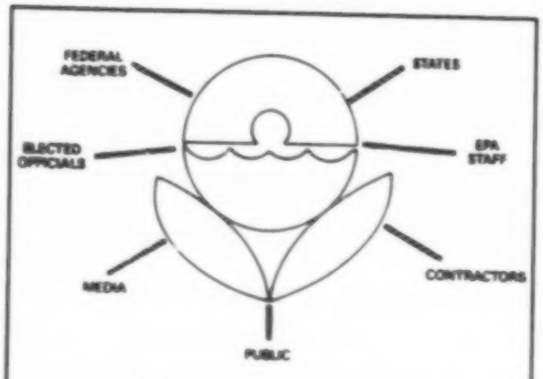
  HSWA expanded citizen rights to bring suit against RCRA violators by allowing private individuals to initiate suits against any past or present generator, transporter, owner, or operator of a facility who has contributed to or is contributing to a condition that may present an imminent and substantial endangerment to human health and the environment.

  However, the right of citizens to bring suits under Section 7002 is limited in certain situations. No suit may be brought if EPA or a State is already taking enforcement action against the alleged violator. HSWA further limits the reach of such suits by prohibiting them from impeding permit issuance or facility siting. Finally, citizens are prohibited from suing transporters for problems that arise following the delivery of hazardous waste.

Regulations

The RCRA regulations under 40 CFR Part 25 focus on:

- Ensuring that the public understands the RCRA program and any proposed changes to it
- Responding to public concerns and including the public in the decision-making process
- Developing a close link among EPA, States, and the public, and
- Providing opportunities for public participation beyond what is required, whenever feasible.



Who Is Involved In Public Participation?

To achieve these regulatory goals, agencies implementing RCRA are required to:

- Provide free copies of reports upon request
- Alert interested and affected parties of upcoming public hearings, and
- Establish EPA-funded advisory groups when an issue warrants sustained input from a core group of citizens.

In addition to the 40 CFR Part 25 regulations, EPA's permitting regulations (40 CFR Part 124) also address public participation. They require the permitting agency to:

- Notify the public of the intent to issue or deny a permit
- Provide the public 45 days to comment on the permit application
- Consider public comments regarding permit violations, and
- Notify the public of proposed major modifications to an operating permit.

In addition, 40 CFR Parts 264 and 265 require public notice and comments on RCRA closure plans.

In the course of administering EPA programs, agency officials have access to material containing CBI, e.g., trade secrets and proprietary information. Because EPA must protect the rights of those who submit privileged information, employees are required to take all reasonable measures to prevent unauthorized disclosure of CBI. Regulations regarding confidentiality are contained in 40 CFR Part 2, Subpart B. These apply to RCRA as well as other EPA programs.

These regulations identify the proper procedures businesses must employ to claim confidentiality. In addition, these regulations establish the guidelines EPA must use to determine the validity of the claim, and impose rules for handling CBI.

When EPA notifies a business that it must submit confidential information for review, EPA also must notify the business of its right to assert a claim of confidentiality. Businesses responding to EPA's queries must clearly identify all confidential documents, materials, and information. EPA then determines the validity of the CBI claim. Businesses can claim information as confidential if it meets certain criteria, e.g., it has been previously protected as confidential, or it is not reasonably obtainable by others.

Employees authorized to use CBI are responsible for the control of such information and they may discuss CBI only with other authorized persons. Any violations should be reported immediately. In addition, employees must not discuss CBI over the telephone and when holding confidential information, they must store the confidential materials in an approved container when not in use. Finally, when working with representatives of businesses that have submitted CBI, employees must verify the representatives' identities before discussing any of the confidential information.

Guidance

To supplement its statutory and regulatory requirements, EPA developed guidance documents regarding public participation in RCRA permitting. The guidance stresses the importance of:

- Identifying public concerns early in the permitting process
- Encouraging the exchange of information among EPA, the State, the permittee, and the community
- Creating open and equal access to the permitting process, and
- Anticipating conflicts and providing an efficient method of resolution.

In some cases, EPA or the State may develop a Public Involvement Plan. This plan outlines the steps and actions EPA will take to communicate with the public during the facility permitting process.

OUTREACH AND PUBLIC ASSISTANCE

A number of opportunities exist for the public to obtain RCRA program information and assistance, including fact sheets and pamphlets. Two particularly noteworthy programs include:

- The RCRA/Superfund Hotline
- The Office of Ombudsman.

RCRA/Superfund Hotline

Hazardous waste regulations often seem complex even to those familiar with EPA's programs. To assist the public in understanding the RCRA and Superfund programs, EPA created the RCRA/Superfund Hotline. Anyone may call the Hotline staff and ask them questions related to the RCRA and Superfund programs. The Hotline is staffed by professionals who are completely familiar with the latest issues and regulations affecting EPA's hazardous waste programs. The Hotline is open Monday through Friday from 8:30 AM to 7:30 PM, and may be contacted at either (202) 382-3000, or toll free (800) 424-9346.

Office of Ombudsman

In order to create a central clearinghouse for public concerns on matters relating to the implementation and enforcement of RCRA, EPA established the Office of Ombudsman and appointed a Hazardous Waste Ombudsman in Headquarters and each Region. The primary responsibilities of the Ombudsman are to respond to questions and complaints regarding EPA's hazardous waste program. In addition, the Ombudsman makes recommendations to the Administrator based on inquiries received. The Headquarters Ombudsman may be reached at:

Office of Ombudsman
U.S. Environmental Protection Agency
Office of Solid Waste and Emergency
Response
Mail Code OS-130
401 M Street, S.W.
Washington, DC 20460
(202) 475-9361

SUMMARY

The public participation framework developed under RCRA expands citizen opportunity for involvement well beyond Agency-wide requirements (outlined in the Administrative Procedures Act and Freedom of Information Act). This framework consists of:

- Statutory requirements
- Regulations
- Guidance.

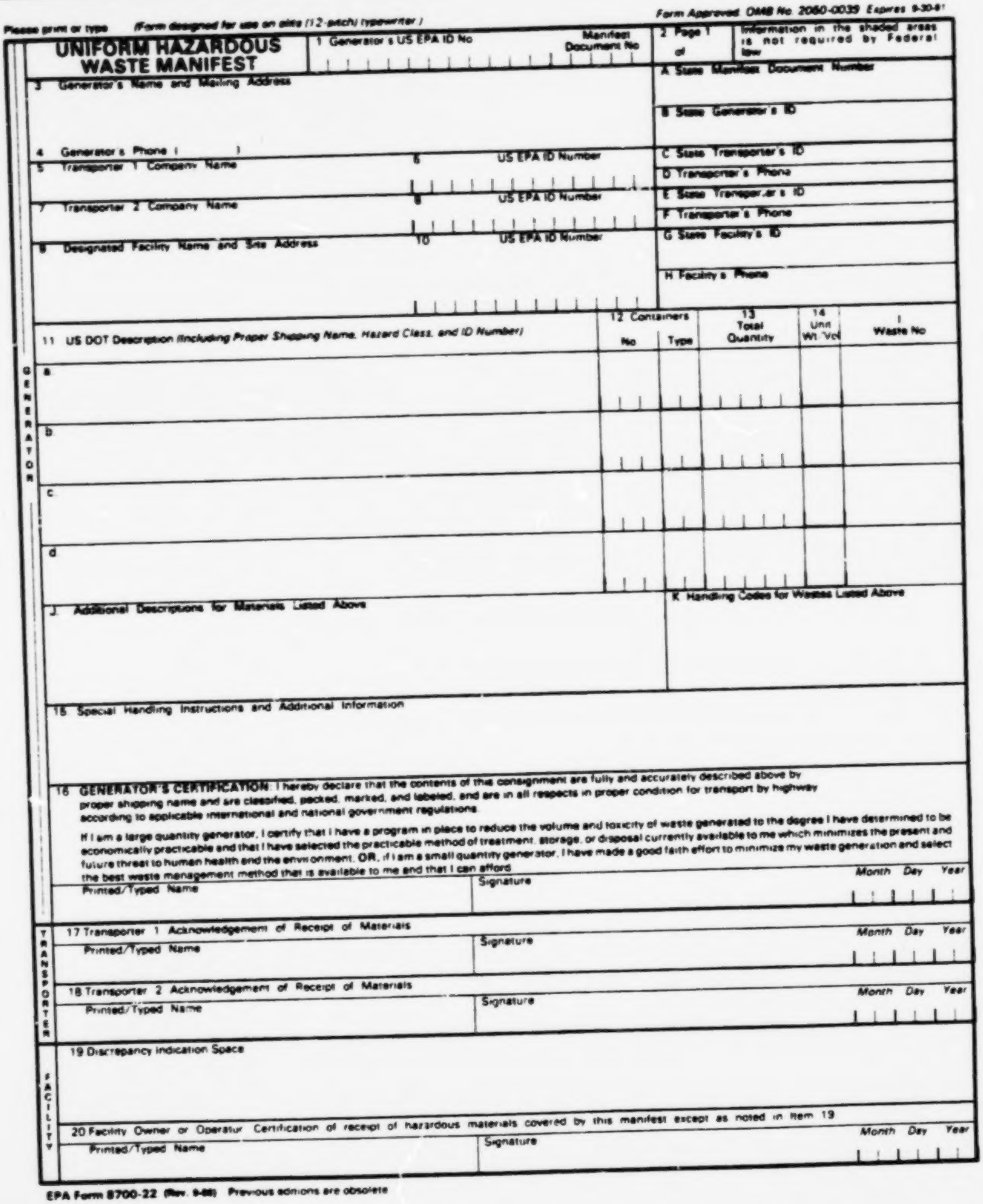
RCRA-mandated programs integrate public comment into many decisions, including State authorization and facility permitting.

EPA adheres to legal requirements for the access to and release of information. In order to protect rights of private industry, EPA also has set standards for the use of privileged company data. EPA strictly regulates CBI by carefully limiting employee access to such information, by strictly controlling the use and storage of such information, and by verifying corporate identity before discussing such information.

To assist citizens with the RCRA program, EPA created a number of public outreach programs; the most noteworthy of these are the RCRA/Superfund Hotline and the Office of the Ombudsman.

APPENDIX A

UNIFORM HAZARDOUS WASTE MANIFEST



Please print or type *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. Manifest Document No.

2. Page 1 of

Information in the shaded areas is not required by Federal law.

A. State Manifest Document Number

B. State Generator's ID

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

5. Transporter 1 Company Name

6. US EPA ID Number

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address

10. US EPA ID Number

G. State Facility's ID

H. Facility's Phone

GENERATOR

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers		13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
	No.	Type			
a.					
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | *Month Day Year*

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | *Month Day Year*

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | *Month Day Year*

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name | Signature | *Month Day Year*

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

BILLING CODE 6560-50-C

Please print or type (Form designed for use on elite (12 pitch) typewriter.)

Form Approved OMB No 2050-0039 Expires [illegible]

UNIFORM HAZARDOUS WASTE MANIFEST *(Continuation Sheet)*	21 Generator's US EPA ID No	Manifest Document No	22 Page	Information in the shaded areas is not required by Federal law

23 Generator's Name	L State Manifest Document Number M State Generator's ID
24 Transporter ____ Company Name / 25 US EPA ID Number	N State Transporter's ID O Transporter's Phone
26 Transporter ____ Company Name / 27 US EPA ID Number	P State Transporter's ID Q Transporter's Phone

GENERATOR

28 US DOT Description *(including Proper Shipping Name, Hazard Class, and ID Number)*	29 Containers		30 Total Quantity	31 Unit Wt/Vol	R Waste No
	No.	Type			
a					
b					
c					
d					
e					
f					
g					
h					
i					

S Additional Descriptions for Materials Listed Above	T Handling Codes for Wastes Listed Above

32 Special Handling Instructions and Additional Information

TRANSPORTER

33 Transporter ____ Acknowledgement of Receipt of Materials		Date
Printed/Typed Name	Signature	Month / Day / Year
34 Transporter ____ Acknowledgement of Receipt of Materials		Date
Printed/Typed Name	Signature	Month / Day / Year

FACILITY

35 Discrepancy Indication Space

EPA Form 8700-22A (Rev. 9-88) Previous edition is obsolete

[FR Doc. 25774 Filed 11-7-88; 8:45 am]

BILLING CODE 6560-50-C

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APPENDIX B

LAND DISPOSAL RESTRICTIONS MANIFESTING

Paperwork Which Must Accompany Hazardous Waste Manifests

Waste Stream	Management Alternative	Paperwork	To Whom
LDR waste with treatment standards	Waste concentration exceeds LDR level. Generator sends to treatment or storage facility	Notification	Treatment or Storage Facility
	Waste concentration is below LDR level. Generator sends to hazardous waste landfill, treatment or storage facility	Notification & Certification	Landfill, Treatment or Storage Facility
LDR waste without treatment standards ("soft hammered")*	Generator determines there is no practically available treatment for the waste. Sends waste directly to hazardous waste landfill	Demonstration & Certification	Regional Admin. & Landfill
	Generator sends waste to practically available treatment facility, and the residue is sent to a hazardous waste landfill	Demonstration & Certification	Regional Admin. & Treatment or Receiving Facility
LDR waste with treatment standards subject to variance	Management sends waste directly to hazardous waste landfill	Notification	Hazardous Waste Landfill

* "Soft-hammered" designation will no longer be applicable after May 8, 1990

APPENDIX C

UNDERGROUND TANK NOTIFICATION FORM

Notification for Underground Storage Tanks

FORM APPROVED
OMB NO. 2050-0068
APPROVAL EXPIRES 9-30-91

EPA estimates public reporting burden for this form to average 30 minutes per response, including time for reviewing instructions, gathering and maintaining the data needed, and completing and reviewing the form. Send comments regarding this burden estimate to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M St., S.W., Washington, D.C. 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503, marked "Attention: Desk Officer for EPA."

STATE USE ONLY

I.D. Number

Date Received

GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act, (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or, in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means—

(a) in the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and

(b) in the case of any underground storage tank in use before November 8, 1984, but no longer in use on that date, any person who owned such tank immediately before the discontinuation of its use.

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing: 1. gasoline, used oil, or diesel fuel, and 2. industrial solvents, pesticides, herbicides or fumigants.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:

1. farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
2. tanks used for storing heating oil for consumptive use on the premises where stored;
3. septic tanks;
4. pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which is an intrastate pipeline facility regulated under State laws;
5. surface impoundments, pits, ponds, or lagoons;
6. storm water or waste water collection systems;
7. flow-through process tanks;
8. liquid traps or associated gathering lines directly related to oil or gas production and gathering operations;
9. storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where To Notify? Completed notification forms should be sent to the address given at the top of this page.

When To Notify? 1. Owners of underground storage tanks in use or that have been taken out of operation after January 1, 1974, but still in the ground, must notify by May 8, 1986. 2. Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use.

Penalties: Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed $10,000 for each tank for which notification is not given or for which false information is submitted.

INSTRUCTIONS

Please type or print in ink all items except "signature" in Section V. This form must be completed for each location containing underground storage tanks. If more than 5 tanks are owned at this location, photocopy the reverse side, and staple continuation sheets to this form.

Indicate number of continuation sheets attached ☐

I. OWNERSHIP OF TANK(S)

Owner Name (Corporation, Individual, Public Agency, or Other Entity)

Street Address

County

City   State   ZIP Code

Area Code   Phone Number

Type of Owner *(Mark all that apply ☒)*

☐ Current   ☐ State or Local Gov't   ☐ Private or Corporate

☐ Former   ☐ Federal Gov't (GSA facility I.D. no. ____________)   ☐ Ownership uncertain

II. LOCATION OF TANK(S)

(If same as Section 1, mark box here ☐)

Facility Name or Company Site Identifier, as applicable

Street Address or State Road, as applicable

County

City (nearest)   State   ZIP Code

Indicate number of tanks at this location ☐

Mark box here if tank(s) are located on land within an Indian reservation or on other Indian trust lands ☐

III. CONTACT PERSON AT TANK LOCATION

Name (If same as Section I, mark box here ☐)   Job Title   Area Code   Phone Number

IV. TYPE OF NOTIFICATION

☐ Mark box here only if this is an amended or subsequent notification for this location

V. CERTIFICATION (Read and sign after completing Section VI.)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner or owner's authorized representative   Signature   Date Signed

CONTINUE ON REVERSE SIDE

7

Owner Name (from Section I) ______________________ Location (from Section II) ______________________ Page No. _____ of _____ Pages

VI DESCRIPTION OF UNDERGROUND STORAGE TANKS *(Complete for each tank at this location.)*

Tank Identification No. (e.g., ABC-123), or Arbitrarily Assigned Sequential Number (e.g., 1,2,3...)	**Tank No.**	**Tank No.**	**Tank No.**	**Tank No.**	**Tank No.**
1. Status of Tank *(Mark all that apply ☒)*					
Currently in Use	☐	☐	☐	☐	☐
Temporarily Out of Use	☐	☐	☐	☐	☐
Permanently Out of Use	☐	☐	☐	☐	☐
Brought into Use after 5/8/86	☐	☐	☐	☐	☐
2. Estimated Age (Years)					
3. Estimated Total Capacity (Gallons)					
4. Material of Construction *(Mark one ☒)*					
Steel	☐	☐	☐	☐	☐
Concrete	☐	☐	☐	☐	☐
Fiberglass Reinforced Plastic	☐	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Other, Please Specify					
5. Internal Protection *(Mark all that apply ☒)*					
Cathodic Protection	☐	☐	☐	☐	☐
Interior Lining (e.g., epoxy resins)	☐	☐	☐	☐	☐
None	☐	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Other, Please Specify					
6. External Protection *(Mark all that apply ☒)*					
Cathodic Protection	☐	☐	☐	☐	☐
Painted (e.g., asphaltic)	☐	☐	☐	☐	☐
Fiberglass Reinforced Plastic Coated	☐	☐	☐	☐	☐
None	☐	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Other, Please Specify					
7. Piping *(Mark all that apply ☒)*					
Bare Steel	☐	☐	☐	☐	☐
Galvanized Steel	☐	☐	☐	☐	☐
Fiberglass Reinforced Plastic	☐	☐	☐	☐	☐
Cathodically Protected	☐	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Other, Please Specify					
8. Substance Currently or Last Stored in Greatest Quantity by Volume *(Mark all that apply ☒)*					
a. Empty	☐	☐	☐	☐	☐
b. Petroleum					
Diesel	☐	☐	☐	☐	☐
Kerosene	☐	☐	☐	☐	☐
Gasoline (including alcohol blends)	☐	☐	☐	☐	☐
Used Oil	☐	☐	☐	☐	☐
Other, Please Specify					
c. Hazardous Substance	☐	☐	☐	☐	☐
Please Indicate Name of Principal CERCLA Substance					
OR Chemical Abstract Service (CAS) No.					
Mark box ☒ if tank stores a mixture of substances	☐	☐	☐	☐	☐
d. Unknown	☐	☐	☐	☐	☐
9. Additional Information (for tanks permanently taken out of service)					
a. Estimated date last used (mo/yr)	/	/	/	/	/
b. Estimated quantity of substance remaining (gal.)					
c. Mark box ☒ if tank was filled with inert material (e.g., sand, concrete)	☐	☐	☐	☐	☐

Owner Name (from Section I) ____________ Location (from Section II) ____________ Page No _____ of _____ Pages

VII CERTIFICATION OF COMPLIANCE (COMPLETE FOR ALL NEW TANKS AT THIS LOCATION)

10 Installation (mark all that apply)

☐ The installer has been certified by the tank and piping manufacturers

☐ The installer has been certified or licensed by the implementing agency

☐ The installation has been inspected and certified by a registered professional engineer

☐ The installation has been inspected and approved by the implementing agency

☐ All work listed on the manufacturer's installation checklists has been completed

☐ Another method was used as allowed by the implementing agency. Please specify

____

11. Release Detection (mark all that apply)

☐ Manual tank gauging

☐ Tank tightness testing with inventory controls

☐ Automatic tank gauging

☐ Vapor monitoring

☐ Ground-water monitoring

☐ Interstitial monitoring within a secondary barrier

☐ Interstitial monitoring within secondary containment

☐ Automatic line leak detectors

☐ Line tightness testing

☐ Another method allowed by the implementing agency. Please specify

____

12 Corrosion Protection (if applicable)

☐ As specified for coated steel tanks with cathodic protection

☐ As specified for coated steel piping with cathodic protection

☐ Another method allowed by the implementing agency. Please specify

____

13 I have financial responsibility in accordance with Subpart I. Please specify

Method ______________________________

Insurer ______________________________

Policy Number ______________________________

14 OATH I certify that the information concerning installation provided in Item 10 is true to the best of my belief and knowledge.

Installer ______________________________ ______________

Name Date

____

Position

____

Company

9

APPENDIX D

MEDICAL WASTE TRACKING MANIFEST

MEDICAL WASTE TRACKING FORM

GENERATOR

1. **Generator's Name and Mailing Address**

2. **Tracking Form Number**

3. **Telephone Number** (   )

4. **State Permit or ID No.**

5. **Transporter's Name and Mailing Address**

EPA Med. Waste ID No.

6. **Telephone Number** (   )

7. **State Transporter Permit or ID No.**

8. **Destination Facility Name and Address**

9. **Telephone Number** (   )

10. **State Permit or ID No.**

11. **US EPA Waste Description**	12. **Total No. Containers**	13. **Total Weight or Volume**
a. Regulated Medical Waste (Untreated)		
b. Regulated Medical Waste (Treated)		
c. State Regulated Medical Waste		

14. **Special Handling Instructions and Additional Information**

15. **Generator's Certification:**

Under penalty of criminal and civil prosecution for the making or submission of false statements, representations, or omissions, I declare, on behalf of the generator that the contents of this consignment are fully and accurately described above and are classified, packaged, marked, and labeled in accordance with all applicable State and Federal laws and regulations, and that I have been authorized in writing to make such declarations by the person in charge of the generator's operation.

Printed/Typed Name Signature Date

INSTRUCTIONS

INSTRUCTIONS FOR COMPLETING MEDICAL WASTE TRACKING FORM

Copy 1 — GENERATOR COPY: Mailed by Destination Facility to Generator
Copy 2 — DESTINATION FACILITY COPY: Retained by Destination Facility
Copy 3 — TRANSPORTER COPY: Retained by Transporter
Copy 4 — GENERATOR COPY: Retained by Generator

As required under 40 CFR Part 259

1. This multicopy (4 page) shipping document must accompany each shipment of regulated medical waste generated in a Covered State.
2. Items numbered 1-14 must be completed before the generator can sign the certification. Items 4, 7, 10, 11c, & 19 are optional unless required by the State. Item 22 must be completed by the destination facility.

For assistance in completing this form, contact your nearest State office or Regional EPA office, or call (800) 424-9346

TRANSPORTER

16. **Transporter 1** (Certification of Receipt of Medical Waste as described in items 11, 12, & 13)

Printed/Typed Name Signature Date

17. **Transporter 2 or Intermediate Handler** (name and address)

EPA Med. Waste ID No.

18. **Telephone Number** (   )

19. **State Transporter Permit or ID No.**

20. **Transporter 2 or Intermediate Handler** (Certification of Receipt of Medical Waste as described in items 11, 12, & 13)

Printed/Typed Name Signature Date

21. **New Tracking Form Number** (for consolidated or remanifested waste)

DESTINATION

22. **Destination Facility** (Certification of Receipt of Medical Waste as described in items 11, 12, & 13)

☐ Received in accordance with items 11, 12, & 13

Printed/Typed Name Signature Date

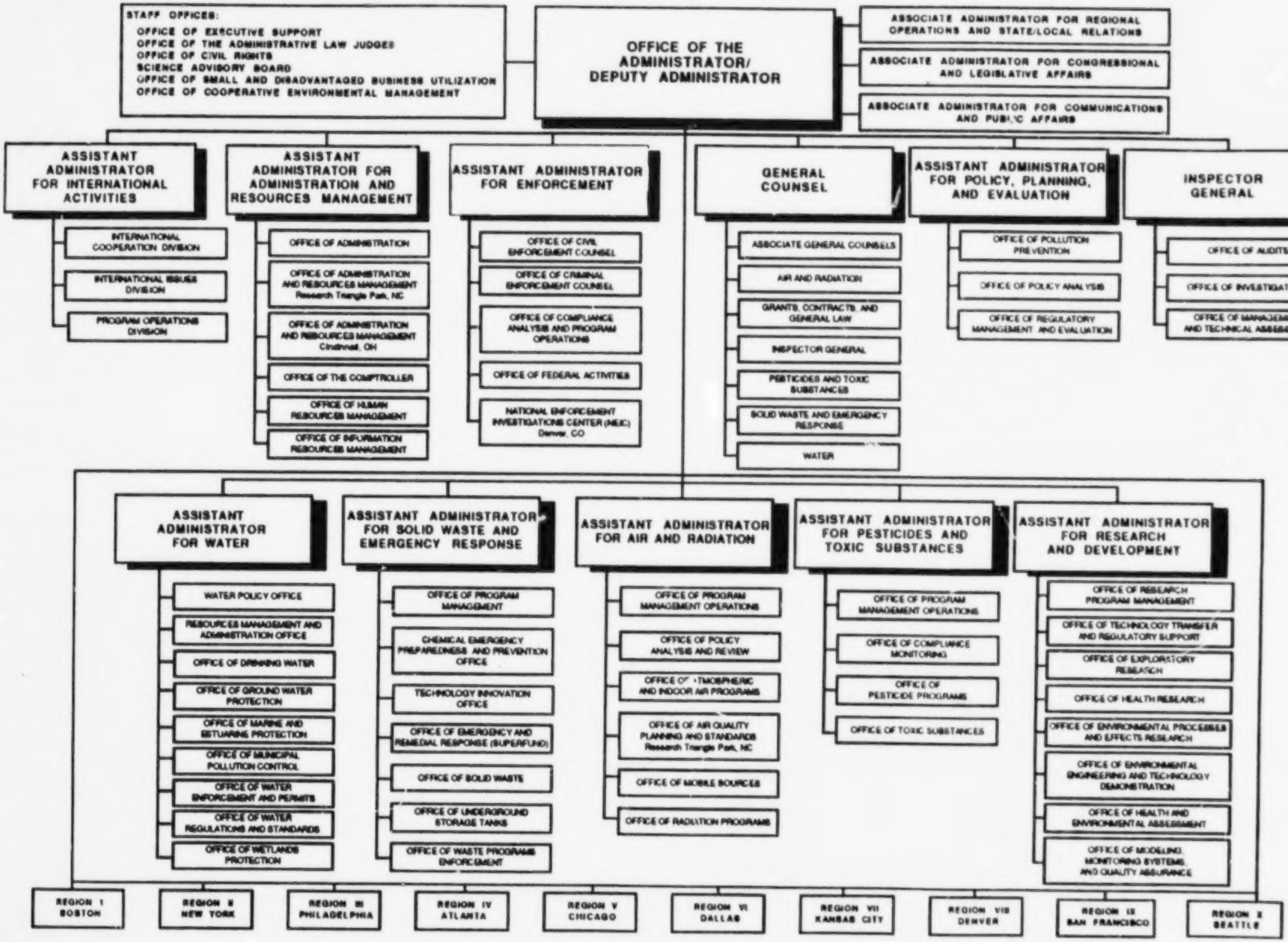
(If other than destination facility, indicate address, phone, and permit or ID no. in box 14.)

23. **Discrepancy Box** (Any discrepancies should be noted by item number and initials)

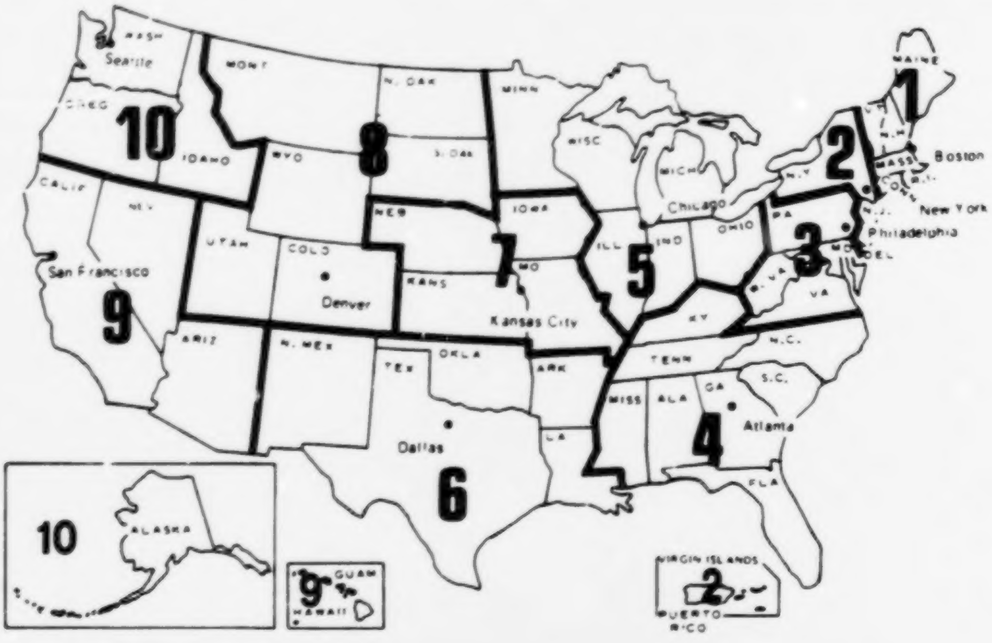
APPENDIX E

EPA ORGANIZATION

U.S. ENVIRONMENTAL PROTECTION AGENCY


STAFF OFFICES:
OFFICE OF EXECUTIVE SUPPORT
OFFICE OF THE ADMINISTRATIVE LAW JUDGES
OFFICE OF CIVIL RIGHTS
SCIENCE ADVISORY BOARD
OFFICE OF SMALL AND DISADVANTAGED BUSINESS UTILIZATION
OFFICE OF COOPERATIVE ENVIRONMENTAL MANAGEMENT
OFFICE OF THE ADMINISTRATOR/ DEPUTY ADMINISTRATOR
ASSOCIATE ADMINISTRATOR FOR REGIONAL OPERATIONS AND STATE/LOCAL RELATIONS
ASSOCIATE ADMINISTRATOR FOR CONGRESSIONAL AND LEGISLATIVE AFFAIRS
ASSOCIATE ADMINISTRATOR FOR COMMUNICATIONS AND PUBLIC AFFAIRS
ASSISTANT ADMINISTRATOR FOR INTERNATIONAL ACTIVITIES
INTERNATIONAL COOPERATION DIVISION
INTERNATIONAL ISSUES DIVISION
PROGRAM OPERATIONS DIVISION
ASSISTANT ADMINISTRATOR FOR ADMINISTRATION AND RESOURCES MANAGEMENT
OFFICE OF ADMINISTRATION
OFFICE OF ADMINISTRATION AND RESOURCES MANAGEMENT Research Triangle Park, NC
OFFICE OF ADMINISTRATION AND RESOURCES MANAGEMENT Cincinnati, OH
OFFICE OF THE COMPTROLLER
OFFICE OF HUMAN RESOURCES MANAGEMENT
OFFICE OF INFORMATION RESOURCES MANAGEMENT
ASSISTANT ADMINISTRATOR FOR ENFORCEMENT
OFFICE OF CIVIL ENFORCEMENT COUNSEL
OFFICE OF CRIMINAL ENFORCEMENT COUNSEL
OFFICE OF COMPLIANCE ANALYSIS AND PROGRAM OPERATIONS
OFFICE OF FEDERAL ACTIVITIES
NATIONAL ENFORCEMENT INVESTIGATIONS CENTER (NEIC) Denver, CO
GENERAL COUNSEL
ASSOCIATE GENERAL COUNSELS
AIR AND RADIATION
GRANTS, CONTRACTS, AND GENERAL LAW
INSPECTOR GENERAL
PESTICIDES AND TOXIC SUBSTANCES
SOLID WASTE AND EMERGENCY RESPONSE
WATER
ASSISTANT ADMINISTRATOR FOR POLICY, PLANNING, AND EVALUATION
OFFICE OF POLLUTION PREVENTION
OFFICE OF POLICY ANALYSIS
OFFICE OF REGULATORY MANAGEMENT AND EVALUATION
INSPECTOR GENERAL
OFFICE OF AUDITS
OFFICE OF INVESTIGATIONS
OFFICE OF MANAGEMENT AND TECHNICAL ASSESSMENT
ASSISTANT ADMINISTRATOR FOR WATER
WATER POLICY OFFICE
RESOURCES MANAGEMENT AND ADMINISTRATION OFFICE
OFFICE OF DRINKING WATER
OFFICE OF GROUND WATER PROTECTION
OFFICE OF MARINE AND ESTUARINE PROTECTION
OFFICE OF MUNICIPAL POLLUTION CONTROL
OFFICE OF WATER ENFORCEMENT AND PERMITS
OFFICE OF WATER REGULATIONS AND STANDARDS
OFFICE OF WETLANDS PROTECTION
ASSISTANT ADMINISTRATOR FOR SOLID WASTE AND EMERGENCY RESPONSE
OFFICE OF PROGRAM MANAGEMENT
CHEMICAL EMERGENCY PREPAREDNESS AND PREVENTION OFFICE
TECHNOLOGY INNOVATION OFFICE
OFFICE OF EMERGENCY AND REMEDIAL RESPONSE (SUPERFUND)
OFFICE OF SOLID WASTE
OFFICE OF UNDERGROUND STORAGE TANKS
OFFICE OF WASTE PROGRAMS ENFORCEMENT
ASSISTANT ADMINISTRATOR FOR AIR AND RADIATION
OFFICE OF PROGRAM MANAGEMENT OPERATIONS
OFFICE OF POLICY ANALYSIS AND REVIEW
OFFICE OF ATMOSPHERIC AND INDOOR AIR PROGRAMS
OFFICE OF AIR QUALITY PLANNING AND STANDARDS Research Triangle Park, NC
OFFICE OF MOBILE SOURCES
OFFICE OF RADIATION PROGRAMS
ASSISTANT ADMINISTRATOR FOR PESTICIDES AND TOXIC SUBSTANCES
OFFICE OF PROGRAM MANAGEMENT OPERATIONS
OFFICE OF COMPLIANCE MONITORING
OFFICE OF PESTICIDE PROGRAMS
OFFICE OF TOXIC SUBSTANCES
ASSISTANT ADMINISTRATOR FOR RESEARCH AND DEVELOPMENT
OFFICE OF RESEARCH PROGRAM MANAGEMENT
OFFICE OF TECHNOLOGY TRANSFER AND REGULATORY SUPPORT
OFFICE OF EXPLORATORY RESEARCH
OFFICE OF HEALTH RESEARCH
OFFICE OF ENVIRONMENTAL PROCESSES AND EFFECTS RESEARCH
OFFICE OF ENVIRONMENTAL ENGINEERING AND TECHNOLOGY DEMONSTRATION
OFFICE OF HEALTH AND ENVIRONMENTAL ASSESSMENT
OFFICE OF MODELING, MONITORING SYSTEMS, AND QUALITY ASSURANCE
REGION I BOSTON
REGION II NEW YORK
REGION III PHILADELPHIA
REGION IV ATLANTA
REGION V CHICAGO
REGION VI DALLAS
REGION VII KANSAS CITY
REGION VIII DENVER
REGION IX SAN FRANCISCO
REGION X SEATTLE

EPA
Regional Offices


WASH
Seattle
OREG
10
IDAHO
MONT
N. DAK
S. DAK
WYO
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MINN
WISC
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CALIF
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COLO
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OHIO
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OKLA
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Dallas
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MISS
ALA
GA
Atlanta
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TENN
KY
N.C.
S.C.
FLA
VA
W. VA
PA
3
Philadelphia
MD
DEL
N.Y.
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New York
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MASS
CONN
R.I.
Boston
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ALASKA
9
GUAM
HAWAII
VIRGIN ISLANDS
2
PUERTO RICO

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10 — Alaska
9 — Arizona
6 — Arkansas
9 — California
8 — Colorado
1 — Connecticut
3 — Delaware
3 — D.C.
4 — Florida
4 — Georgia
9 — Hawaii
10 — Idaho
5 — Illinois
5 — Indiana
7 — Iowa
7 — Kansas
4 — Kentucky
6 — Louisiana

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1 — Maine
3 — Maryland
1 — Massachusetts
5 — Michigan
5 — Minnesota
4 — Mississippi
7 — Missouri
8 — Montana
7 — Nebraska
9 — Nevada
1 — New Hampshire
2 — New Jersey
6 — New Mexico
2 — New York
4 — North Carolina
8 — North Dakota
5 — Ohio
6 — Oklahoma
10 — Oregon

Regions

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1 — Rhode Island
4 — South Carolina
8 — South Dakota
4 — Tennessee
6 — Texas
8 — Utah
1 — Vermont
3 — Virginia
10 — Washington
3 — West Virginia
5 — Wisconsin
8 — Wyoming
9 — American Samoa
9 — Guam
2 — Puerto Rico
2 — Virgin Islands

REGIONAL ADDRESSES AND TELEPHONE NUMBERS

REGION 1 ------ John F. Kennedy Federal Building -- Room 2203
Boston, MA 02203
FTS -- 8-835-3715 DDD -- (617) 565-3715

REGION 2 ------ 26 Federal Plaza -- Room 900
New York, NY 10278
FTS -- 8-264-2657 DDD -- (212) 264-2657

REGION 3 ------ 841 Chestnut Street
Philadelphia, PA 19107
FTS -- 8-597-9800 DDD -- (215) 597-9800

REGION 4 ------ 345 Courtland Street NE
Atlanta, GA 30365
FTS -- 8-257-4727 DDD -- (404) 347-4727

REGION 5 ------ 230 South Dearborn Street
Chicago, IL 60604
FTS -- 8-353-2000 DDD -- (312) 353-2000

REGION 6 ------ First Interstate Bank Tower at Fountain Place
1445 Ross Avenue -- 12th Floor, Suite 1200
Dallas, TX 75202
FTS -- 8-255-6444 DDD -- (214) 655-6444

REGION 7 ------ 726 Minnesota Avenue
Kansas City, KS 66101
FTS -- 8-276-7000 DDD -- (913) 551-7000

REGION 8 ------ One Denver Place -- Suite 500
999 18th Street
Denver, CO 80202-2405
FTS -- 8-330-1603

REGION 9 ------ 1200 Sixth Avenue
Seattle, WA 98101
FTS -- 8-399-1200 DDD -- (206) 442-1200

REGION 10 ------ 1235 Mission Street
San Francisco, CA 94103
FTS -- 8-556-6322 DDD -- (415) 556-6322

APPENDIX F

HELPFUL ENVIRONMENTAL INFORMATION NUMBERS

HELPFUL ENVIRONMENTAL INFORMATION NUMBERS

EPA OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE

Office of Solid Waste and Emergency Response (OSWER)	202-382-4610
Office of Ombudsman	202-475-9361
Office of Program Management	202-475-8716
Office of Solid Waste (OSW)	202-382-4627
Office of Underground Storage Tanks (OUST)	202-382-4756
Office of Waste Programs Enforcement (OWPE)	202-382-4814
Office of Emergency and Remedial Response (OERR)	202-382-2180
Chemical Emergency Preparedness Office	202-475-8600
Technology Innovation Office	202-475-8716

EPA DOCKETS

Resource Conservation and Recovery Act (RCRA)	202-475-9327
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	202-382-3046
Clean Air Act (CAA)	202-382-7548
Underground Storage Tanks (UST)	202/475-9720
Safe Drinking Water Act (SDWA)	202-382-7380
Toxic Substances Control Act (TSCA)	202-382-3587
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)	202-557-2805

EPA HOTLINES

RCRA/CERCLA Hotline	202-382-3000 800-424-9346
FIFRA/General Pesticide Information	202-557-7090 800-858-7378

HELPFUL ENVIRONMENTAL INFORMATION NUMBERS (continued)

TSCA Asbestos Hotline	202-554-1404
Safe Drinking Water Act Hotline	202-382-5533 800-426-4791
Chemical Emergency Preparedness Program (CEPP) Hotline	202-479-2449 800-353-0202
Asbestos in Schools Hotline	202-554-1404 800-835-6700

OTHER INFORMATION NUMBERS

EPA Small Business Hotline	800-368-5888
EPA Public Information Center	202-475-7751
EPA Headquarters Library	202-382-5921
National Response Center for Oil and Hazardous Materials Spills	202-426-2675 800-424-8802

APPENDIX G

RCRA ACRONYMS

RCRA Acronyms and Commonly Used Terms

AA - Assistant Administrator

AG - Attorney General

AO - Administrative Order

ARAR - Applicable or Relevant and Appropriate Requirement

ASTSWMO - Association of State and Territorial Solid Waste Management Officials

BOY SNC - Beginning-Of-Year Significant Non-Compliers

CA - Corrective Action

CAA - Clean Air Act

CBI - Confidential Business Information

CDI - Case Development Inspection

CEI - Compliance Evaluation Inspection

CERCLA - Comprehensive Environmental Response, Compensation and Liability Act

CERCLIS - CERCLA Information System

CFR - Code of Federal Regulations

CME - Comprehensive Ground Water Monitoring Evaluation

CMEL - Compliance Monitoring Evaluation Log

CMI - Corrective Measures Implementation

CMS - Corrective Measures Study

C/PC - Closure/Post-closure

CSI - Compliance Sampling Inspection

CWA - Clean Water Act

DAA - Deputy Assistant Administrator

DOE - Department of Energy

DOJ - Department of Justice

DOT - Department of Transportation

EPI - Environmental Priorities Initiative

ERP - Enforcement Response Policy

FFCA - Federal Facility Compliance Agreement

FFIS - Federal Facility Information System

FIFRA - Federal Insecticide, Fungicide and Rodenticide Act

FOIA - Freedom of Information Act

FR - Federal Register

FY - Fiscal Year

GWM - Ground-Water Monitoring

HWDMS - Hazardous Waste Data Management System

HSWA - Hazardous and Solid Waste Amendments of 1984

LDF - Land Disposal Facility

LDR - Land Disposal Restrictions

LOIS - Loss of Interim Status

MOA - Memorandum of Agreement

MPRSA - Marine Protection, Research and Sanctuaries Act

MSWLF - Municipal Solid Waste Landfill

NOD - Notice of Deficiency

NOV - Notice of Violation

NPL - National Priorities List

NRC - Nuclear Regulatory Commission; National Response Center

NSWMA - National Solid Waste Management Association

OERR - Office of Emergency and Remedial Response

O&M - Operation and Maintenance

OMB - Office of Management and Budget

O/O - Owner/Operator

OSW - Office of Solid Waste

OSWER - Office of Solid Waste and Emergency Response

OUST - Office of Underground Storage Tanks

OWPE - Office of Waste Programs Enforcement

RA - Regional Administrator

RCRA - Resources Conservation and Recovery Act

RCRIS - RCRA Information System

RD&D - Research, Demonstration and Development

RFA - RCRA Facility Assessment

RFI - RCRA Facility Investigation

RIP - RCRA Implementation Plan

SARA - Superfund Amendments and Reathorization Act of 1986

SCRAM - The State Consolidated RCRA Authorization Manual

SDWA - Safe Drinking Water Act

SNC - Significant Non-Complier

SOP - Standard Operating Procedures

STARS - Strategic Targeted Activities for Results System

SQG - Small Quantity Generator

SWMU - Solid Waste Management Unit

TEGD - Technical Enforcement Guidance Document

TSCA - Toxic Substances Control Act

TSDF - Treatment, Storage, and Disposal Facility

UST - Underground Storage Tank

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